

Service Manual

PIONEER
The Art of Entertainment

• KEH-M6300/EW



ORDER NO.
CRT1383

MULTI-CD CONTROL FM/MW/LW TUNER DECK AMPLIFIER

KEH-M6300

 EW, IT

KEH-M6300SDK

 WG

MULTI-CD CONTROL FM/AM TUNER DECK AMPLIFIER

KEH-M6200

 UC

KEH-M6250

 ES

Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

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SAFETY INFORMATION (UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

SPECIFICATIONS (KEH-M6300/EW)

General

Power source 14.4 V DC (10.8 – 15.6 V allowable)
Grounding system Negative type
Max. current consumption 4.5 A
Dimensions (chassis) 180 (W) x 50 (H) x 150 (D) mm
(front face) 188 (W) x 58 (H) x 19 (D) mm
Weight 1.5 kg

Amplifier

Maximum power output 25 W x 2 (EIAJ)
Continuous power output 11 W x 2 (1% dist. at 1 kHz)
Load impedance 4 Ω (4 – 8 Ω allowable)
Max. output level/output impedance (preout)
..... 500 mV/1 k Ω
Tone controls (bass) ± 10 dB (100 Hz)
(treble) ± 10 dB (10 kHz)
Loudness contour +12 dB (100 Hz), +7 dB (10 kHz)
(Volume: -30 dB)

Tape player

Tape Compact cassette tape (C-30 – C-90)
Tape speed 4.76 cm/sec. (+0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time Approx. 100 sec. for C-60
Wow & flutter 0.13 % (WRMS)
Frequency response Metal: 40 – 17,000 Hz (± 3 dB)
Stereo separation 45 dB

Signal-to-noise ratio

..... Metal: Dolby B NR IN: 63 dB (IEC-A network)
..... Dolby NR OUT: 55 dB (IEC-A network)

FM tuner

Frequency range 87.5 – 108 MHz
Usable sensitivity 11 dBf (1.0 μ V/75 Ω , mono, S/N: 30 dB)
50 dB quieting sensitivity 16 dBf (1.7 μ V/75 Ω , mono)
Signal-to-noise-ratio 70 dB (IEC-A network)
Distortion 0.3 % (at 65 dBf, 1 kHz, stereo)
Frequency response 30 – 15,000 Hz (± 3 dB)
Stereo separation 40 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range 531 – 1,602 kHz
Usable sensitivity 18 μ V (25 dB) (S/N: 20 dB)
Selectivity 50 dB (± 9 kHz)

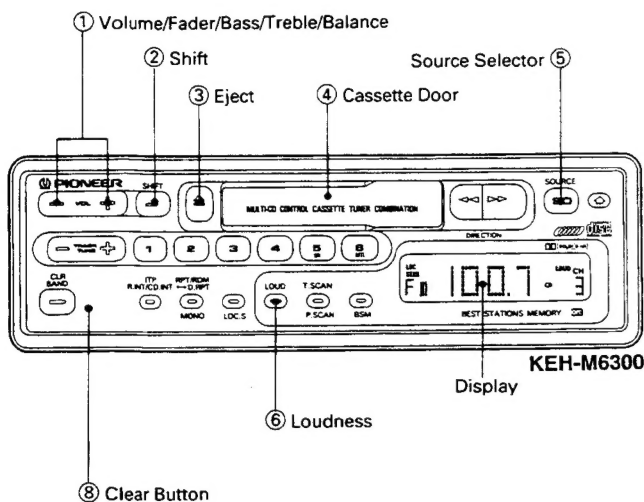
LW tuner

Frequency range 153 – 281 kHz
Usable sensitivity 30 μ V (30 dB) (S/N: 20 dB)
Selectivity 50 dB (± 9 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

2. ADJUSTING VOLUME AND TONE



Using the Clear Button

Once all wiring is complete, press button ⑧ with a thin, pointed object. Though not a normal occurrence, the microprocessor which controls the operation of this unit can be affected by electrostatic noise. This generally is indicated by such symptoms as no power being supplied when you switch the unit on, failure of buttons and controls, or an abnormal display. Should this happen, press button ⑧ with a thin, pointed object to reset the microprocessor.

Switching Power On

Radio

Press button ⑤ to switch the tuner power on. Press button ⑤ again to switch the power off.

Tape

Insert the cassette tape through the Cassette Door ④, and the power will be automatically turned on to get the tape start being played back. To eject the tape, press the button ③.

Changing the Source

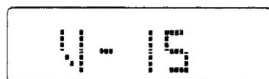
When the cassette tape is inserted, the source changes at each press of the button ⑤: Tape — Radio — OFF. When a Multi-Play CD player — optionally available Multi-Play CD Player CDX-M40, for example — is connected to your unit, the source changes: Multi-Play CD Player — Tape — Radio — OFF.

Adjusting Volume/Fader/Bass/Treble/Balance

To adjust volume, press the button ①. The display changes at each press of the button ②: Volume — Fader — Bass — Treble — Balance. Press the button ① to adjust the displayed mode.

Adjusting Volume

Pressing the (+) side of button ① increases the volume, while the (-) side decreases it.



Adjusting the Fader

KEH-M6300:

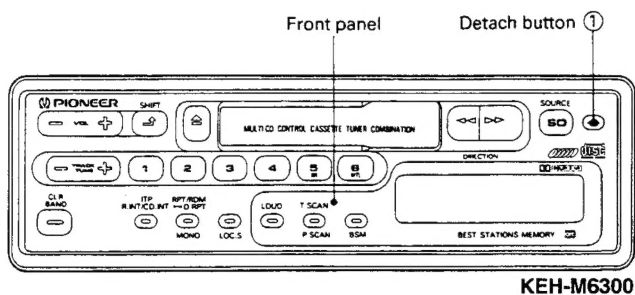
This function controls the balance between the front and rear speakers of a 4-speaker system. Pressing the (–) side of button ① shifts the balance to the front speakers, while the (+) side shifts it to the rear speakers. In the case of a 2-speaker system, set the display to “**F-R0**” (or “**F-F0**”).

1. USING THE REMOVABLE FRONT PANEL

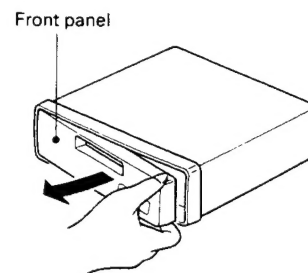
The front panel of this unit can be removed to prevent theft.

Detaching the Front Panel

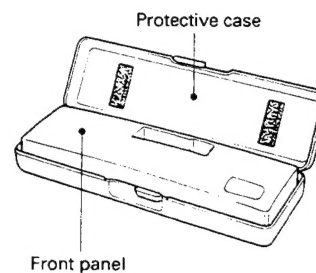
1. Press button ①, and the right-hand side of the panel will eject.



2. To remove the front panel, pull its right-hand side toward you.



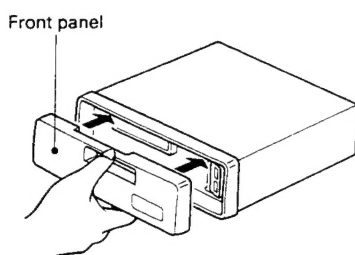
- Take care not to put pressure on the display or drop the front panel.
3. Enclose for safekeeping the front panel that is removed in the supplied protective case.



Replacing the Front Panel

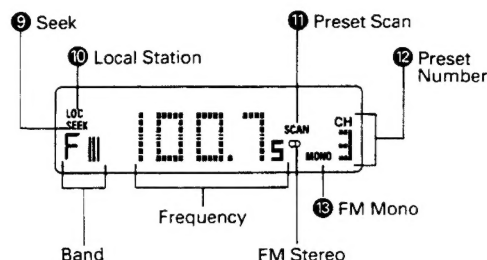
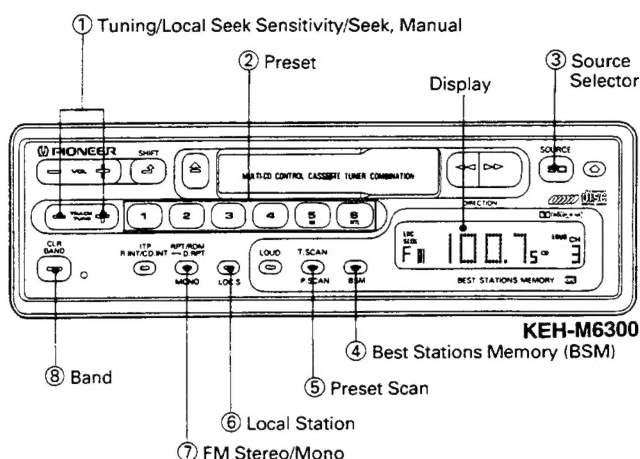
Push the front panel into the main body.

- When replacing the front panel, do not put pressure on the display or control buttons.



- Note that if the front panel is not attached correctly, pushing button ① may not release the panel, and the other control buttons may not function.

3. USING THE RADIO



① Press button ③ to switch the radio power on.

② Press button ⑧ to select a band.

F I → F II → F III → M/L

(FM1) (FM2) (FM3) (MW/LW)

Use Button ① to switch between MW (531–1,602 kHz) and LW (153–281 kHz).

③ Use seek tuning to tune in a frequency.

Confirm that the SEEK indicator ⑨ is shown on the display (if not, press the (+) and (–) sides of button ① at the same time). Press the (+) side of button ① to automatically tune in the next higher receivable frequency, and the (–) side for a lower frequency.

④ Adjust volume and tone

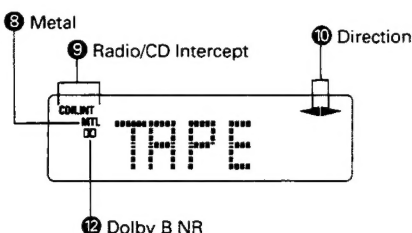
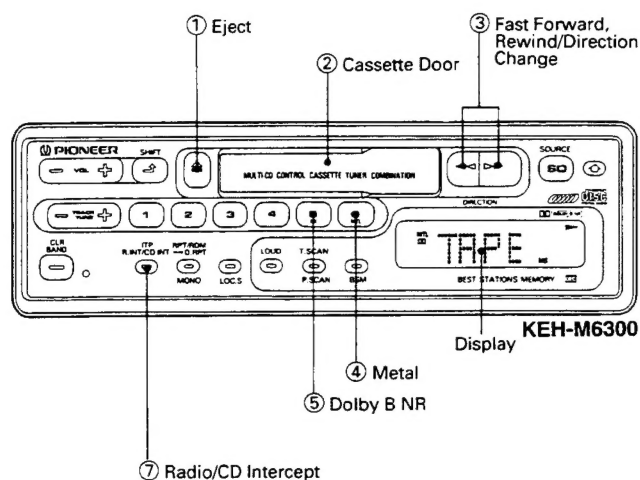
⑤ Assign the tuned frequency to one of the buttons in Bank ② (preset memory).

Press and hold down one of the button in Bank ② for at least two seconds. The frequency is assigned to the selected button when the preset number ⑫ stops flashing on the display. Up to 18 FM stations (6 each for FM1, FM2 and FM3), and six MW/LW stations can be assigned to the preset memory buttons in Bank ②.

⑥ Once a frequency is assigned to a button in Bank ②, you just need to press that button to tune it in.

This also causes the number of the button pressed to appear at position ⑫ on the display.

4. USING THE TAPE DECK



① Insert the cassette tape into the slot ②, and power will be turned on and the tape begin being played back.

At this time, the tape running direction indicator ⑩ will light up.

② Adjust volume and tone

③ To eject the cassette tape, press the button ①

- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.

- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.

Changing Program

Push the fast forward and rewind buttons ③ together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

Using Fast Forward and Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons ③ can be regarded as fast forward/rewind buttons.

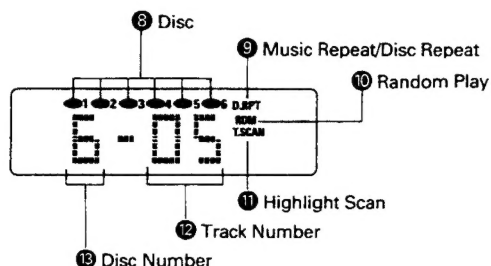
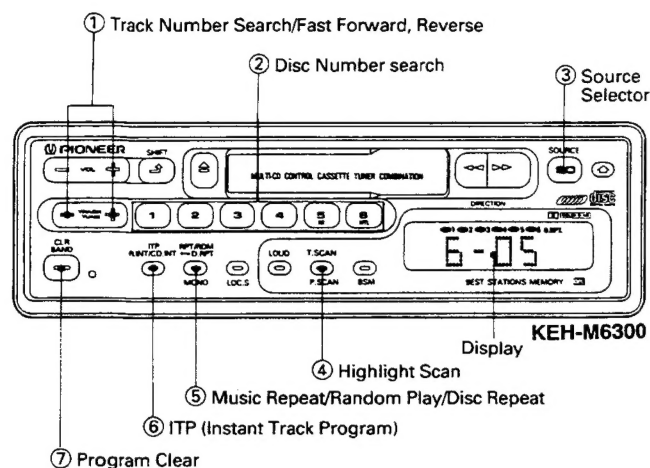
For fast forward, press the high-speed tape transport button ③ that corresponds to the direction that is shown by the direction indicator ⑩.

When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button ③ that is opposite that of the direction shown by the direction indicator ⑩. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button ③.

5. PLAYING COMPACT DISCS



1 Press button ③ to change the display to the Multi-Play CD player mode and to begin disc play.

Each press of button ③ changes the mode as follows:
Multi-Play CD player → Tape → tuner → OFF

2 Use the Disc Number Search function to select a disc.

Select the desired disc by pressing one of the buttons in Bank ②. The number of the disc selected appears at position ⑬ on the display.

- Display ⑧ indicates whether the magazine is loaded or empty.
- If the number at position ⑬ on the display does not change when you press a button in Bank ②, it means that there is no disc loaded in that tray.

3 Use Track Number search to select a track.

Confirm that Track Number is shown at Position ⑫ on the display.

If not, press the (+) and (-) sides of button ① at the same time. Press the (+) side of button ① to increase the number at Position ⑫, or the (-) side to decrease the number. Holding either side of button ① down changes the track number at high speed.

4 Adjust volume and tone

5 To stop disc play, press button ③.

At another press, the normal play resumes from about where it stopped.

- If you stopped operating a Multi-Play CD Player CDX-M100 in the middle of music and then restarted, the player resumes playing from the very beginning of the selection with which you stopped.

6. BLOCK DIAGRAM

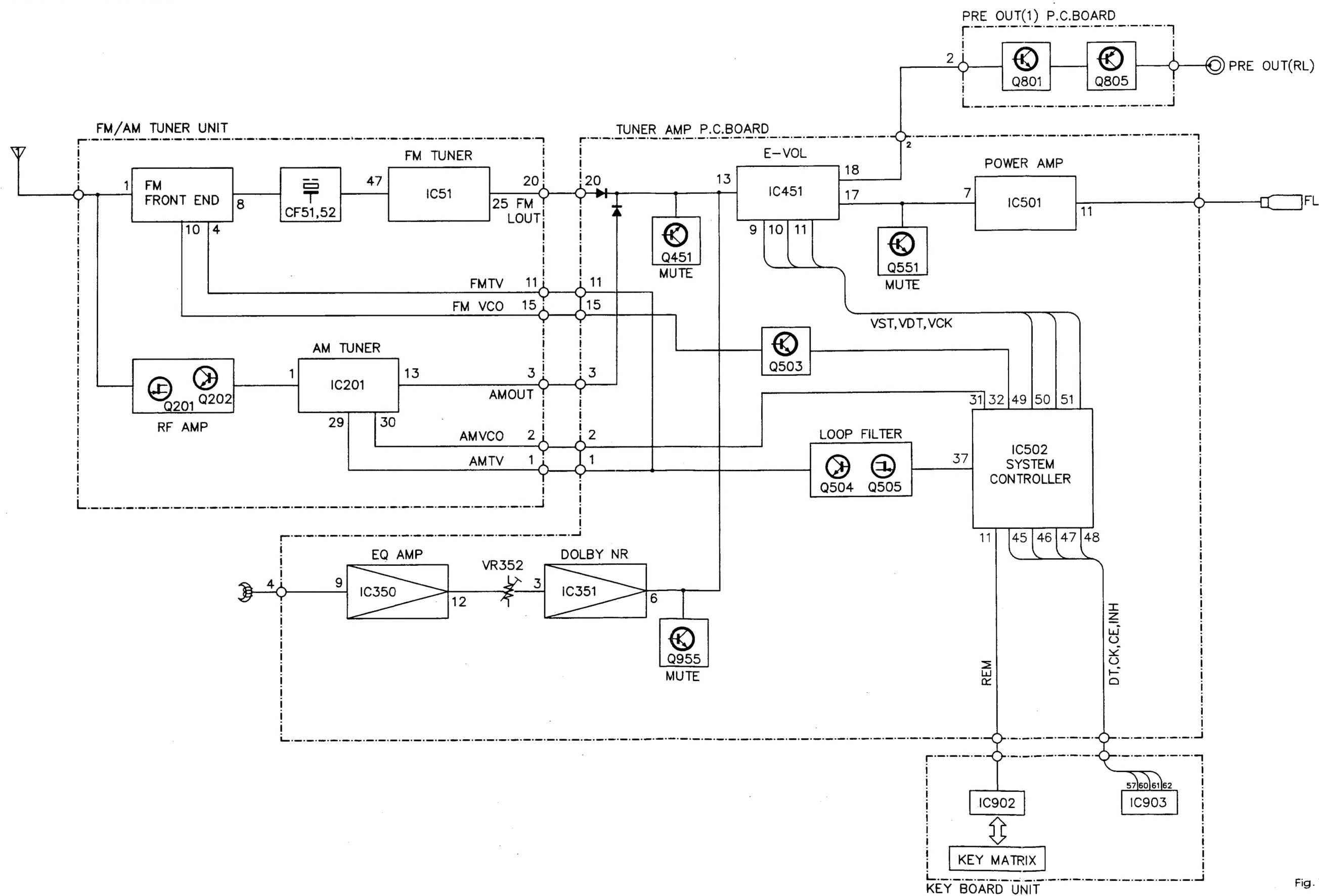


Fig. 1

7. DISASSEMBLY

- Removing the case
 - 1. Insert and turn a screwdriver at locations indicated by arrows to remove the case.
- Removing the grille assy
 - 1. Press the detach button, and then pull grille assy.

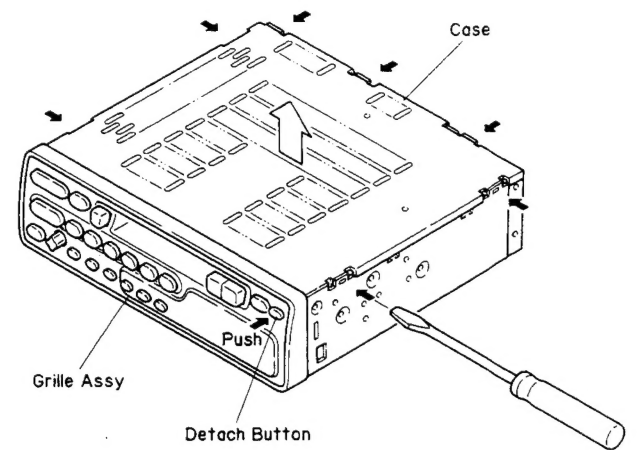


Fig. 2

- Removing the cassette mechanism assy
 - 1. Remove the four screws.
 - 2. Disconnect the connector.
 - 3. Remove the cassette mechanism assy.
- Removing the panel assy
 - 1. Remove the two screws.
 - 2. Disconnect the connector.
 - 3. Remove the panel assy.

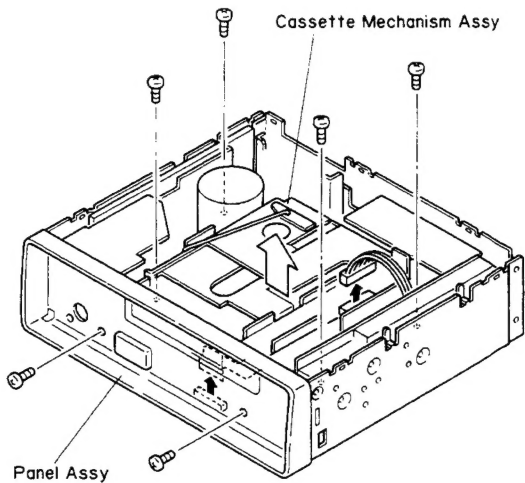


Fig. 3

- Removing the chassis unit
- 1. Remove the five screws.
- 2. Remove the antenna plug.
- 3. Remove the chassis unit.

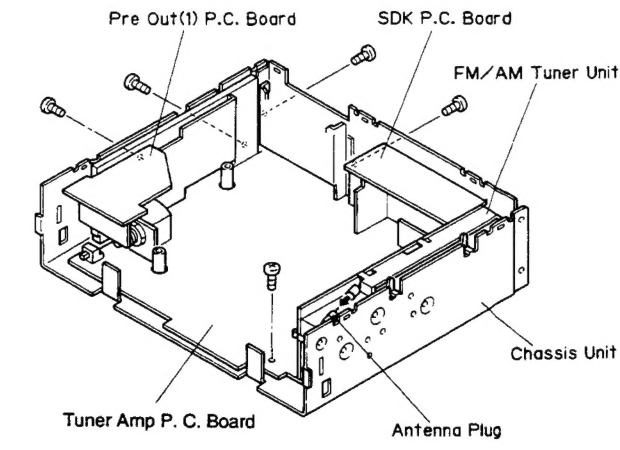


Fig. 4

8. ADJUSTMENT

8.1 TEST MODE

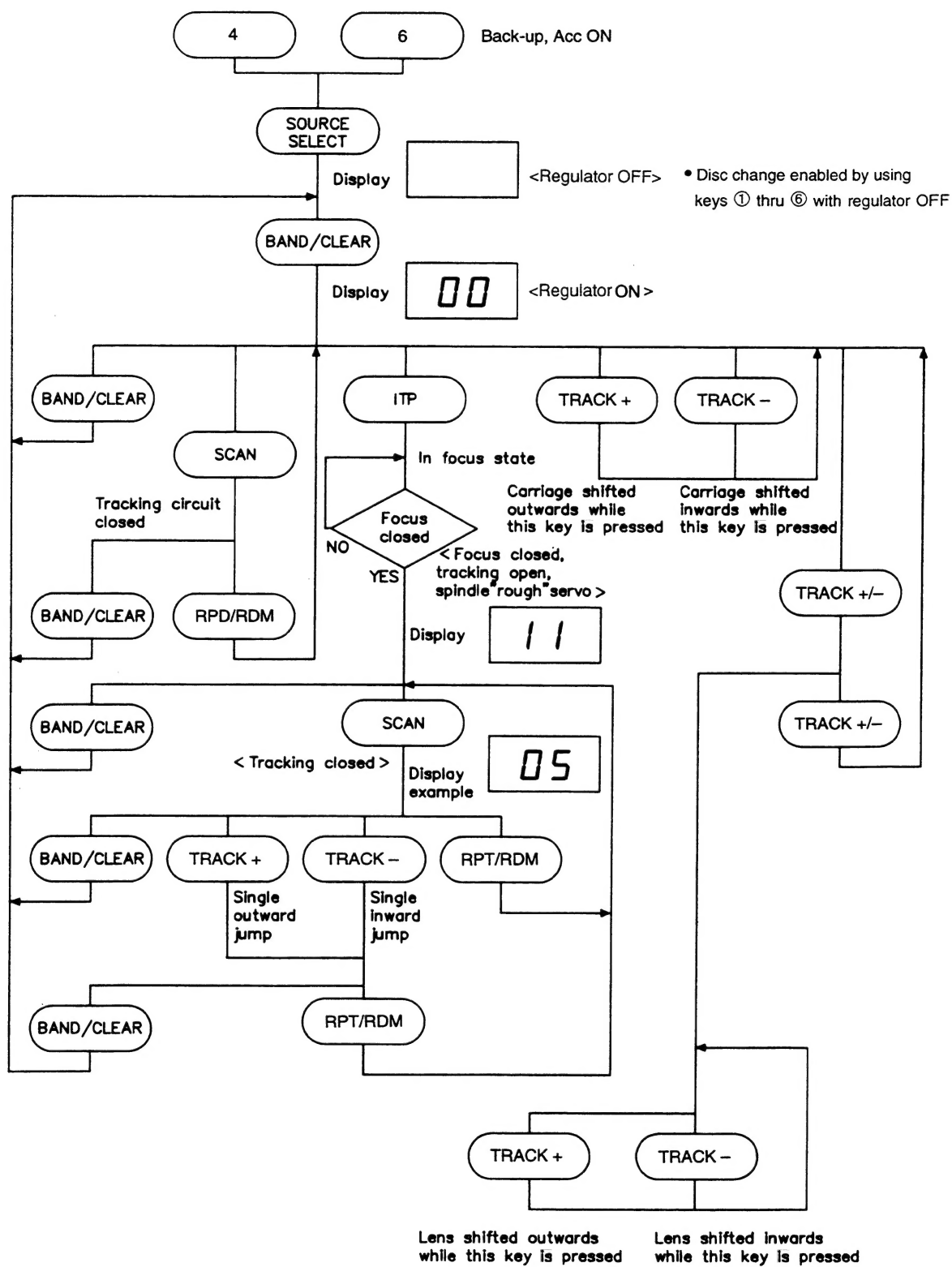
Test mode is mainly used in adjustment of CD multi-players.

- Switching to test mode
- While pressing the 4,6 keys together, switch the back-up and the ACC ON.
- Canceling test mode
- While pressing the CD multi-player clear button, switch the this unit back-up and ACC OFF.
- Key functions during test mode
- The CD multi-player, deck, and tuner are selected by the SOURCE button.
- a) CD multi-player

key	Function
BAND/CLEAR	Regulator ON/OFF
TRACK +	FWD kick
TRACK -	REV kick
SCAN	Tracking close
RPT/RDM	Tracking open
ITP	Focus close
TRACK +/-	Carriage/tracking switching

- b) Deck and tuner
- No corresponding function. Normal operation executed.

•Flow Chart



8. 2 TUNER ADJUSTMENT

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

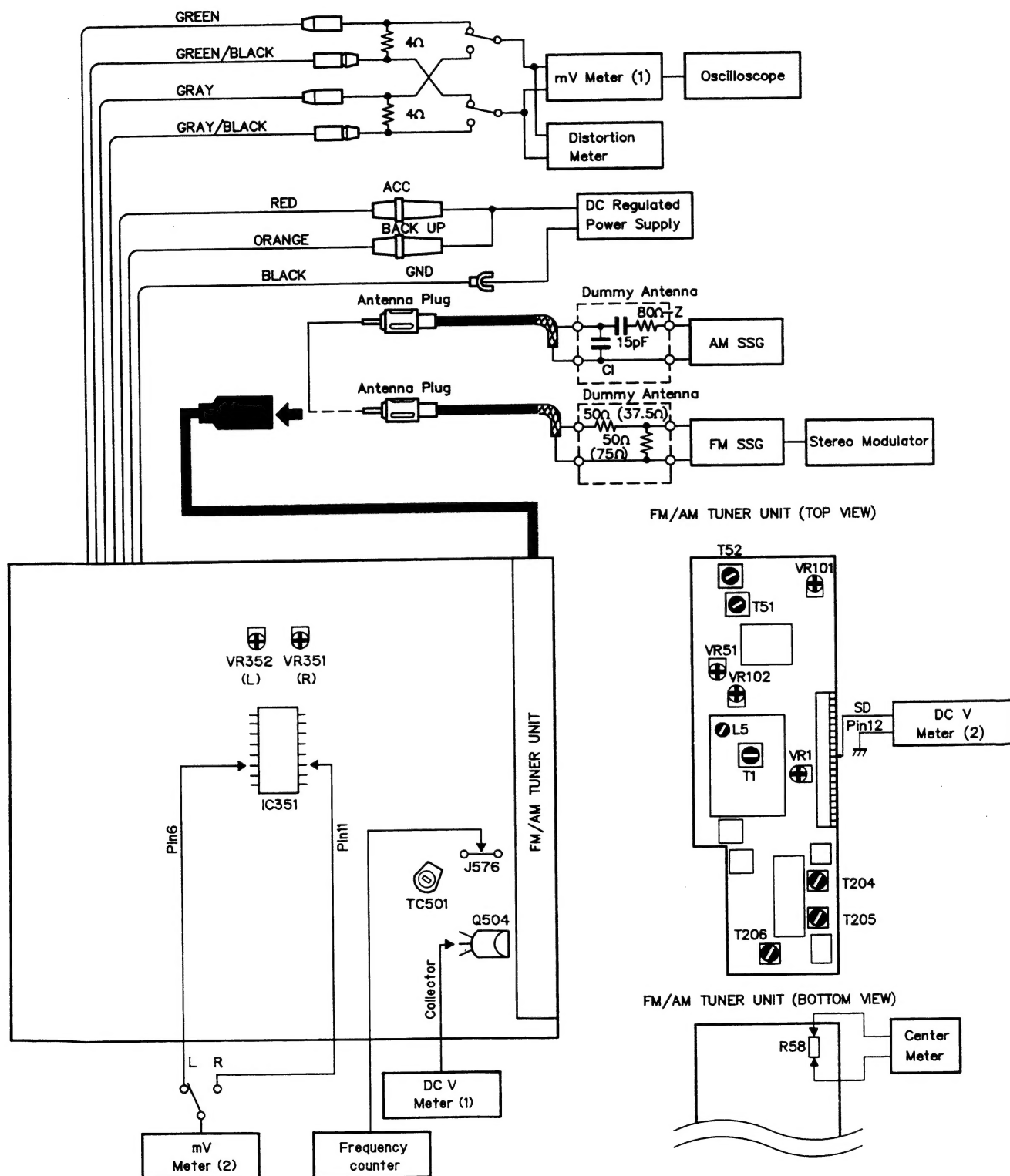


Fig. 5

FM ADJUSTMENT ※ Stereo MOD.: 1kHz, L+R=90% , Pilot=10%
 *(): EW, WG, ES, IT Model

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dB μ V)			
IF	1	98.1	60	98.1	T51	Center Meter:0
	2	98.1	60	98.1	T52	Distortion Meter:Minimum
	3	Repeat No. 1-2 alternately so that the center meter indicates the 0 output and distortion meter indicates minimum output.				
Front End	1			107.9 *(108)	L5	DC V Meter (1): 6.2 ± 0.2 V
	2			87.9 *(87.5)		Verify that DCV Meter (1) is more than 2.1 ± 0.6 V
	3	98.1	8	98.1	T1	Oscilloscope:Optimum Symmetry
	4	98.1※	60	98.1	T1	Distortion Meter:Minimum Rotate T1 less than $\pm 90^\circ$
Soft Mute	1	98.1	60	98.1		mV Meter (1):A dB
	2	98.1	9	98.1	VR102	mV Meter (1):A-3dB
ARC	1	98.1※	34	98.1	VR101	mV Meter (1):Separation 5dB
SD	1	98.1	15	98.1	VR51	DC V Meter (2):Approx. 5 V
	2	98.1	14	98.1		Verify that DC V Meter (2) is approx. 0V.
	3	98.1	55	98.1	VR1	DC V Meter (2):Approx. 5 V
		Connect collector of Q2 to GND. Connect DC regulated power supply to pin 3 of FM front end through resistor (330 Ω). Add 4.3v from DC regulated power supply.				
	4	98.1	54	98.1		Verify that DC V Meter (2) is approx. 0V.

AM ADJUSTMENT (UC, ES model)

* () : ES model when tuning step at 9kHz.

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB μ V)			
Tuning Volt	1			1,710 *(1,602)	—	Verify that DC V Meter (1) is less than 6.5V.
	2			530 *(531)	—	Verify that DC V Meter (1) is more than 2.0V.
IF	1	1,000 (999)	15	1,000 (999)	T204, 205, 206	mV Meter (1) : Maximum

MW/LW ADJUSTMENT (EW, WG, IT model)

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB μ V)			
Tuning Volt	1	(MW MODE)		1,602	—	Verify that DC V Meter (1) is less than 6.5V.
	2	(LW MODE)		153	—	Verify that DC V Meter (1) is more than 2.0V.
IF	1	999	20—25	999	T204, 205, 206	mV Meter (1) : Maximum

DOLBY NR ADJUSTMENT (EW, WG, IT model)

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR352 (Lch) VR351 (Rch)	mV Meter (2) : -6dB \pm 1dB (DOLBY NR Switch: OFF)

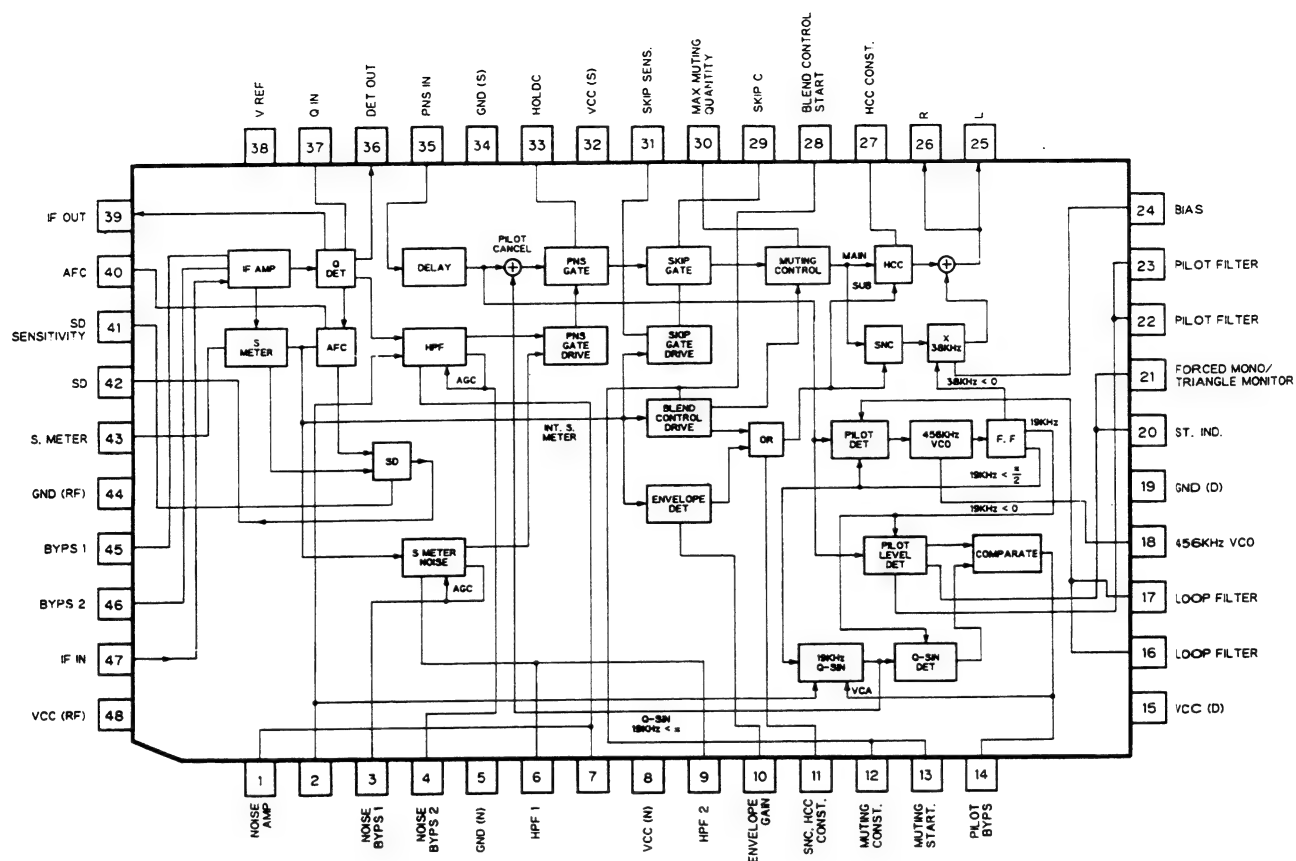
CLOCK ADJUSTMENT (UC, ES model)

No.	Adjusting Point	Adjustment Method
1	AM Tuner Mode	Display: UC model 1,710kHz Display: ES model 1,602kHz
2	TC501	Frequency Counter: UC model 12,420kHz \pm 50Hz Frequency Counter: ES model 12,312kHz \pm 50Hz

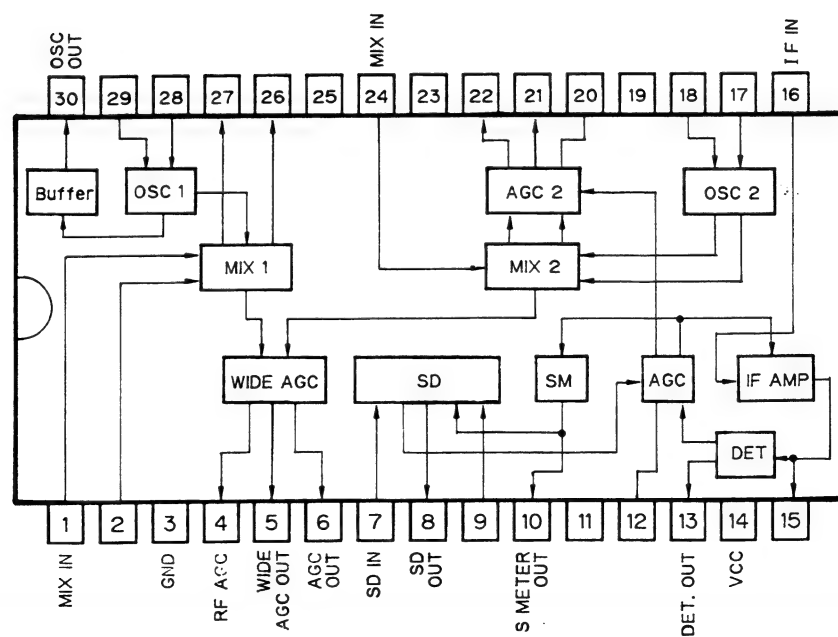
ES model when tuning step at 9kHz.

- ICs

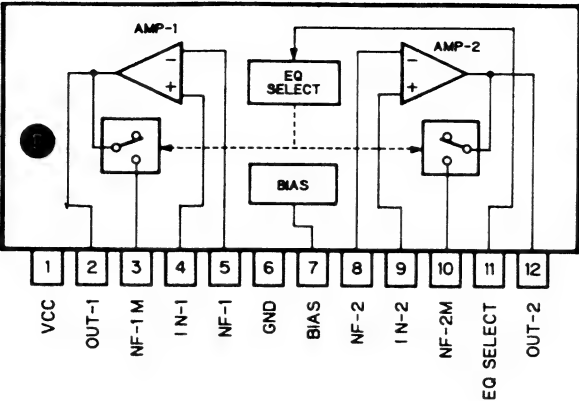
PA4012B



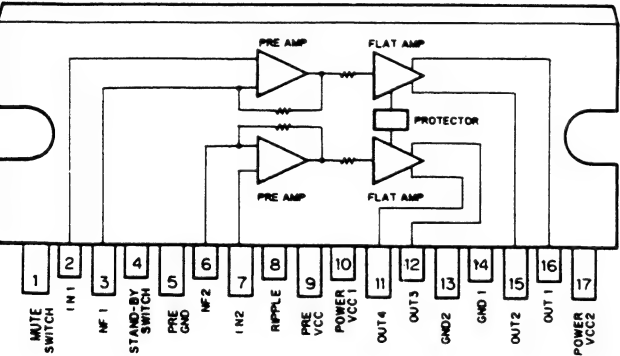
PA4017



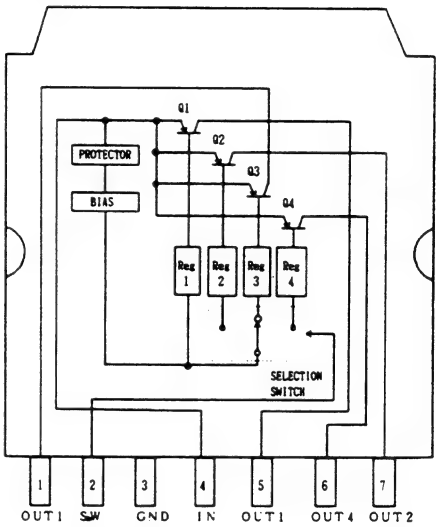
TA8162SN



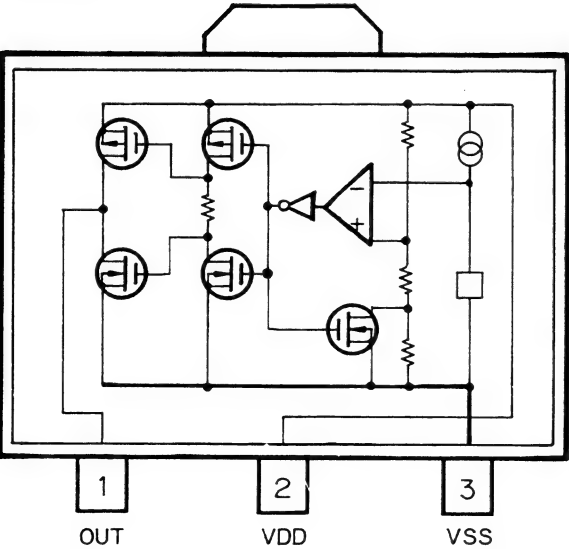
TA8215H-A



TA8214K

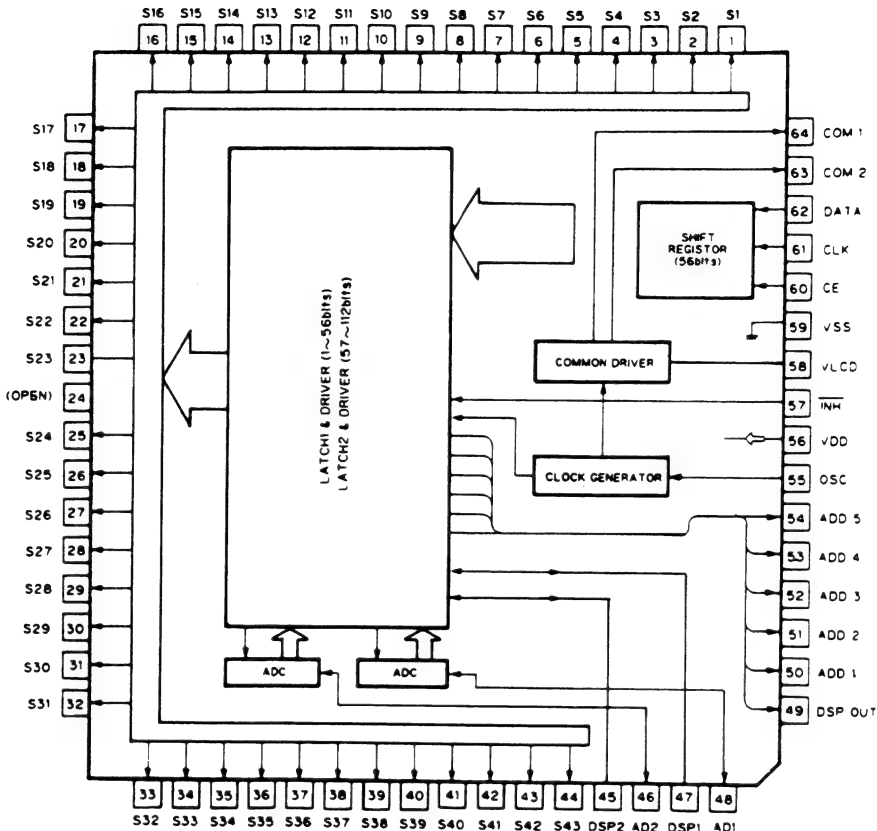


S-80740AH

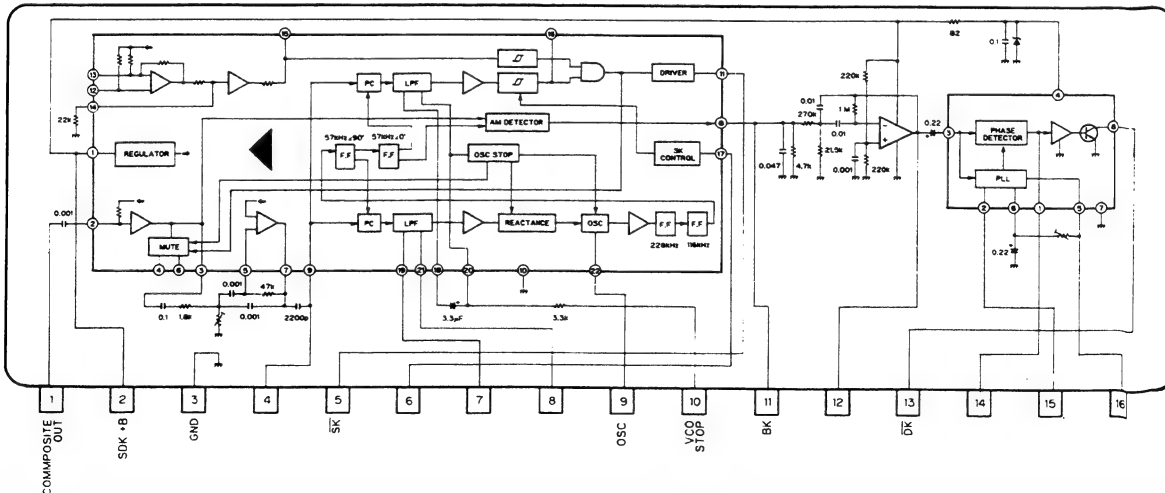


IC's marked by * are MOS type.
Be careful in handling them because they are very
liable to be damaged by electrostatic induction.

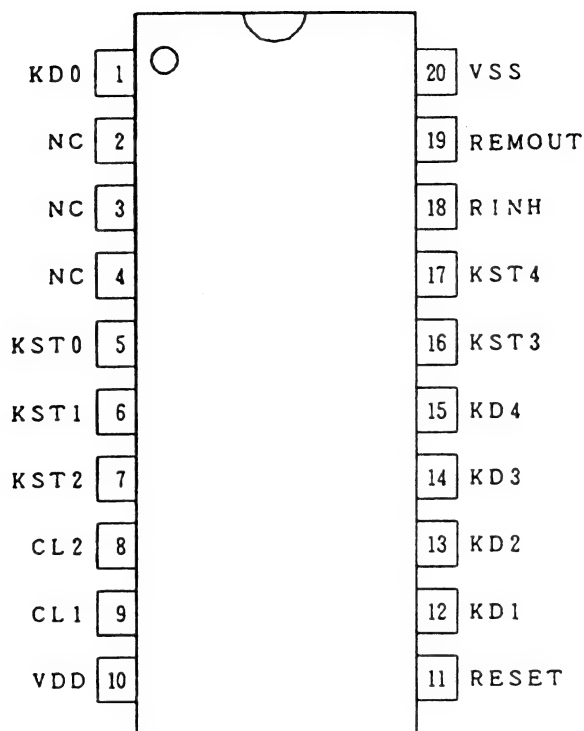
* LC7582A



KHAC02



PD4285

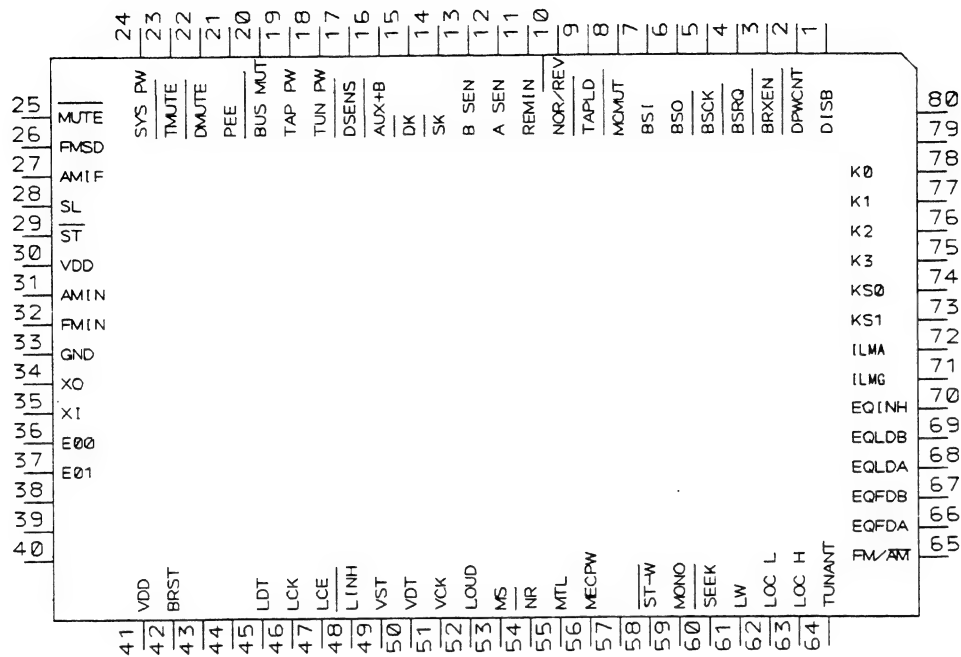


•Pin Functions (PD4285)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	KDD	INPUT		Key return input
2-4	NC			
5-7	KST0-KST2	OUTPUT	NM	Key strobe output
8	CL2			System clock generator connector pin
9	CL1			System clock generator connector pin
10	VDD			
11	RESET	INPUT		Reset input
12-15	KD1-KD4	INPUT		Key return input
16, 17	KST3, KST4	OUTPUT	NM	Key strobe output
18	RINH	OUTPUT	NM	Remote controller OFF output when key data is outputed
19	REMOUT	OUTPUT	NM	Remote controller data output
20	VSS			GND

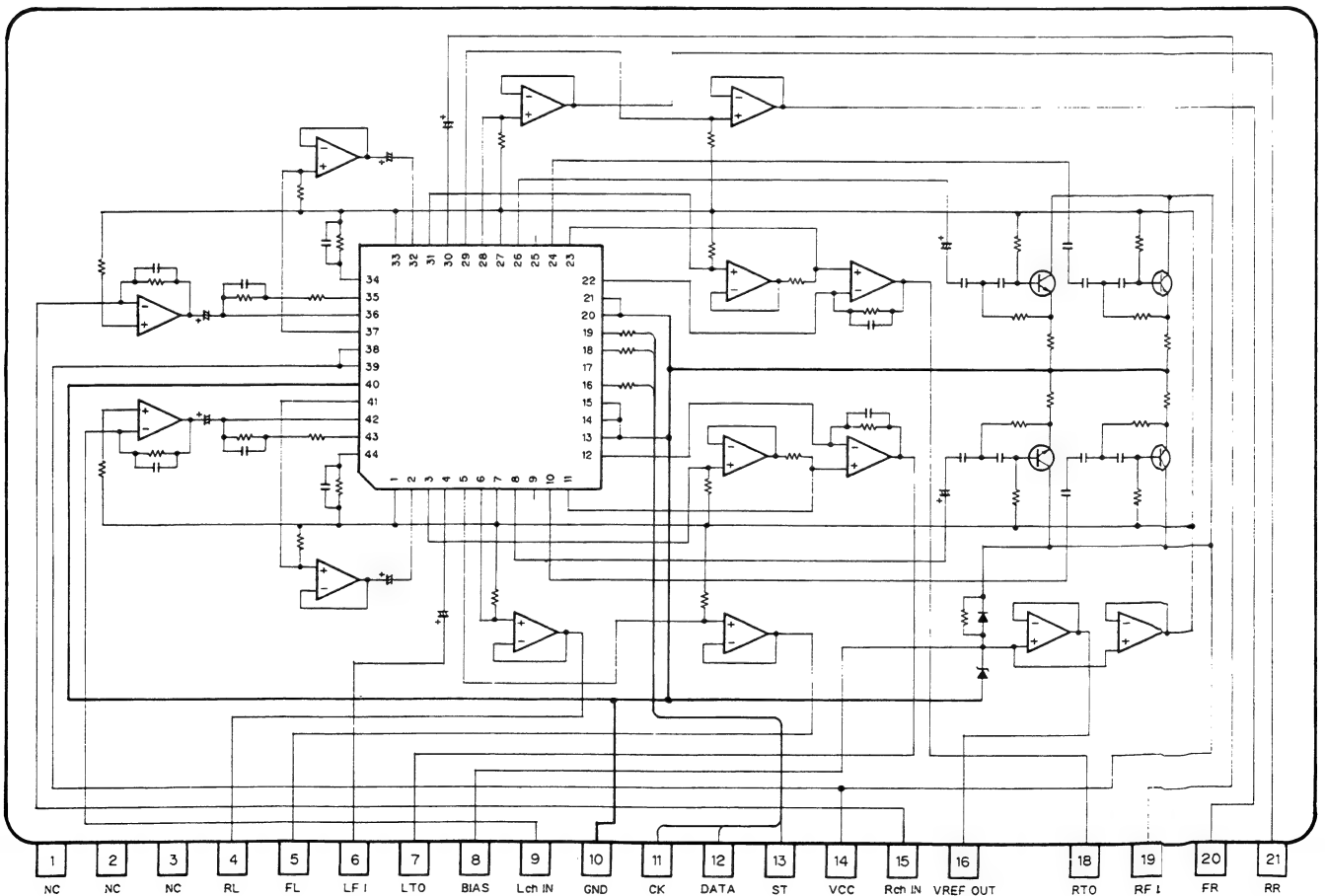
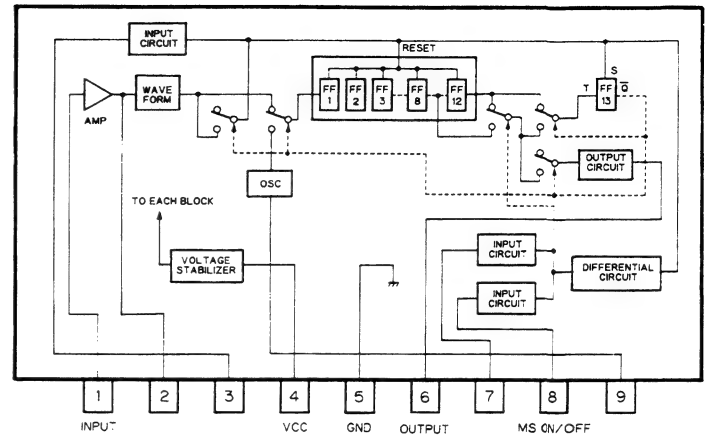
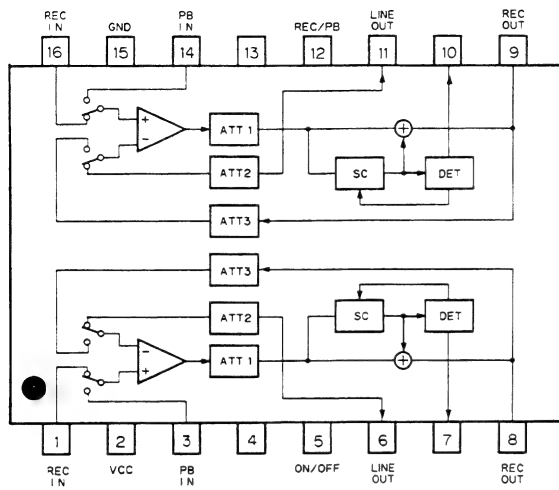
Output Format	Meaning
NM	Neutral resistivity N channel open drain

• PD4302
PD4343A



• Pin Functions (PD4302, PD4343A)

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	DISB	Output	C	AUX control output
2	DPWCNT	Output	C	Front panel EJECT/REPLACE control signal output
3	BRXEN	Input/ Output		Bus reception enable line
4	BSRQ	Input/ Output		Data communications serial poll request
5	BSCK	Input/ Output		Bus serial clock input/output
6	BSO	Output		Bus serial data output
7	BSI	Input		Bus serial data input
8	MCMUT	Input		Mechanism mute request
9	TAPLD	Input		Cassette loading input
10	NOR/REV	Input		Deck FWD/REV sensor input
11	REMIN			Key input
12	ASENS			ACC sense input
13	BSENS			Back up sense input
14	SK	Input		SK signal input
15	DK	Input		DK signal input
16	AUX+B	Input		AUX input
17	DSNS	Input		Front panel EJECT/REPLACE sensor input
18	TUNPW	Output	N	Tuner power supply control
19	TAPPW	Output	N	Deck power supply control
20	BUSMUT	Output	N	Bus mute output
21	PEE	Output	C	Beep tone output
22	DMUTE	Output	C	Deck mute output
23	TMUTE	Output	C	Tuner mute output

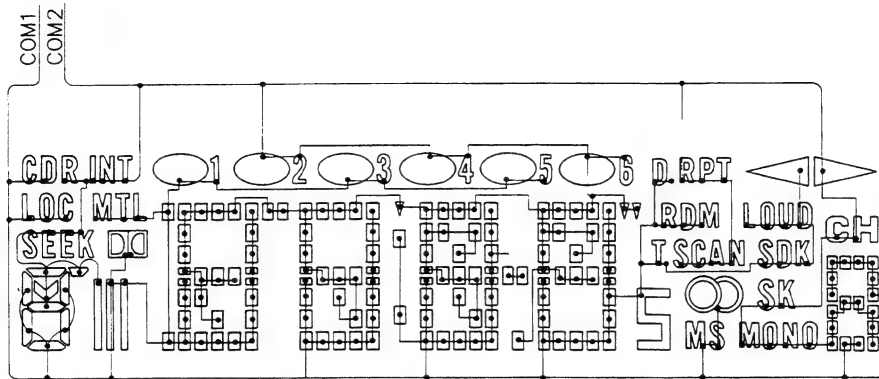


Pin No.	Pin Name	I/O	I/O Format	Function and Operation
24	SYSPW	Output	C	System power supply control
25	MUTE	Output	C	Mute
26	FMSD	Input		FM IF input
27	AMIF	Input		AM IF input
28	SL	Input		Signal level input
29	ST	Input		Stereo signal input
30	VDD			
31	AMIN	Input		AM VCO input
32	FMIN	Input		FM VCO input
33	GND			
34, 35	Xout, in			
36, 37	E00, 1			
38-40				Not used
41	VDD			
42	BRST	Output	C	Bus reset
43, 44				Not used
45	LDT	Output	C	LCD driver data output
46	LCK	Output	C	LCD driver clock
47	LCE	Output	C	LCD driver CE
48	LINH	Output	C	LCD driver INH
49	VST	Output	C	E-VOL strobe
50	VDT	Output	C	E-VOL data
51	VCK	Output	C	E-VOL clock
52	LOUD	Output	C	Loudness
53	MS	Output	C	Music signal input
54	NR	Output	C	Dolby NR ON/OFF output
55	MTL	Output	C	Deck METAL (70 μ S) output
56	MECPW	Output	C	Deck power supply control
57				Not used
58	ST-W	Output	C	Stereo wide
59	MONO	Output	C	Mono output
60	SEEK	Output	C	"L" output when SEEK
61	LW	Output	C	LW output
62	LOCL	Output	C	Local L
63	LOCH	Output	C	Local H
64	TUNANT	Output	C	Antenna output
65	FM/AM	Output	C	FM/AM switching
66	EQFDA	Output	C	1P, EQ Fc control
67	EQFDB	Output	C	1P, EQ Fc control
68	EQLDA	Output	C	1P, EQ level control
69	EQLDB	Output	C	1P, EQ level control
70	EQINH	Output	C	1P, EQ INH
71	ILLMG	Output	C	Green illumination light output
72	ILLMA	Output	C	Amber illumination light output
73	KS1	Output	C	Model sense output
74	KS0	Output	C	Model sense output
75-78	K3-K0	Input		Key matrix input
79, 80				Not used

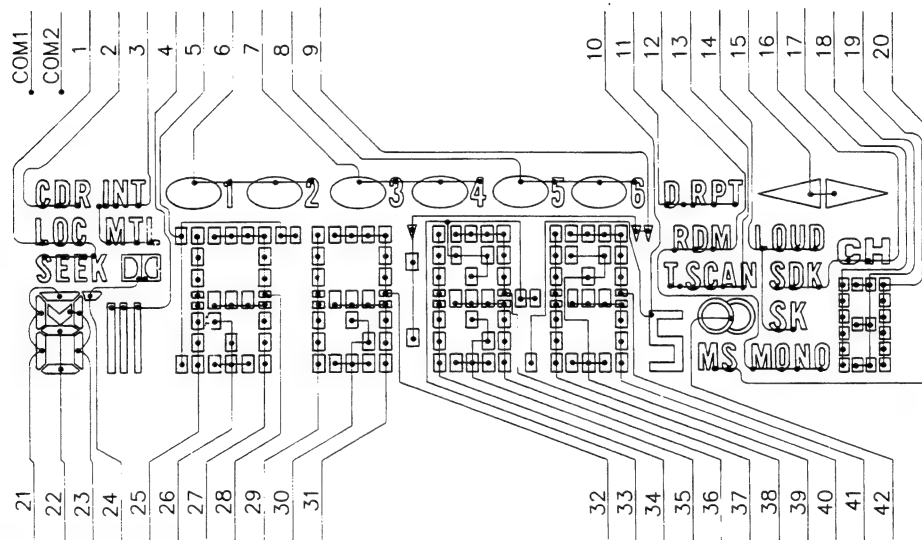
Output Format	Meaning
C	CMOS Output
N	N channel open drain

•LCD (CAW1124)

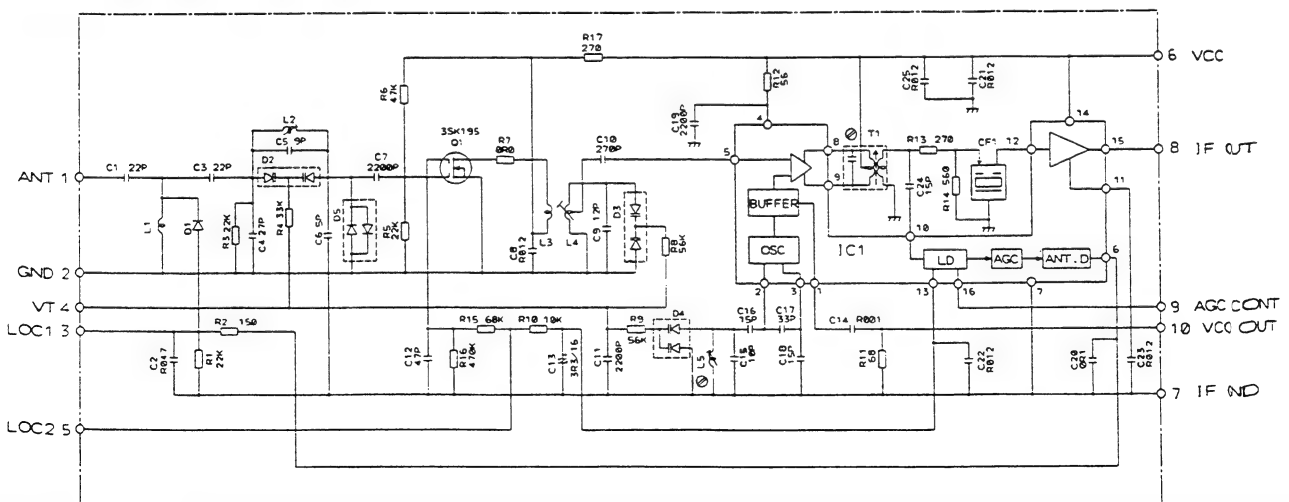
COMMON



SEGMENT



•FM FRONT END (CWB1035)



NOTE:

□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

—|— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as
2.2—2R2
0.022—R022

Q974 Q975 Q969 Q963 Q551 IC501
61 Q965 Q964 Q550 Q552 Q553 Q554
Q977 Q979 Q918 Q980 Q978

PRE OUT(1) P.C. BOARD

SDK P.C. BOARD

IC, Q Q800 Q808 Q806 Q802 Q801 Q805

IC, Q IC701 Q703 Q702 Q701

RCA FRONT

TO FM/AM
TUNER UNIT

KEY BOARD UNIT

IC, Q IC903 IC902 IC901
ADJ

Fig. 6

10. SCHEMATIC CIRCUIT DIAGRAM (KEH-M6300/EW, IT, M6300SDK/WG)

TO TUNER AMP P.C. BOARD

SDK P.C. BOARD (KEH-M6300SDK)

TUNER AMP P.C. BOARD

FM/AM TUNER UNIT

EW (Fig. 11), SDK (Fig. 13)

P.C. BOARD (A)

HEAD UNIT EXA1163

TEST TAPE 315Hz OdB

P.C. BOARD (B)

ELECTRONIC VO

SYSTEM CONTROL

IC502

PD4302

VCO AMP

LOOP FILTER

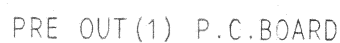
LCD DRIVER

IC903

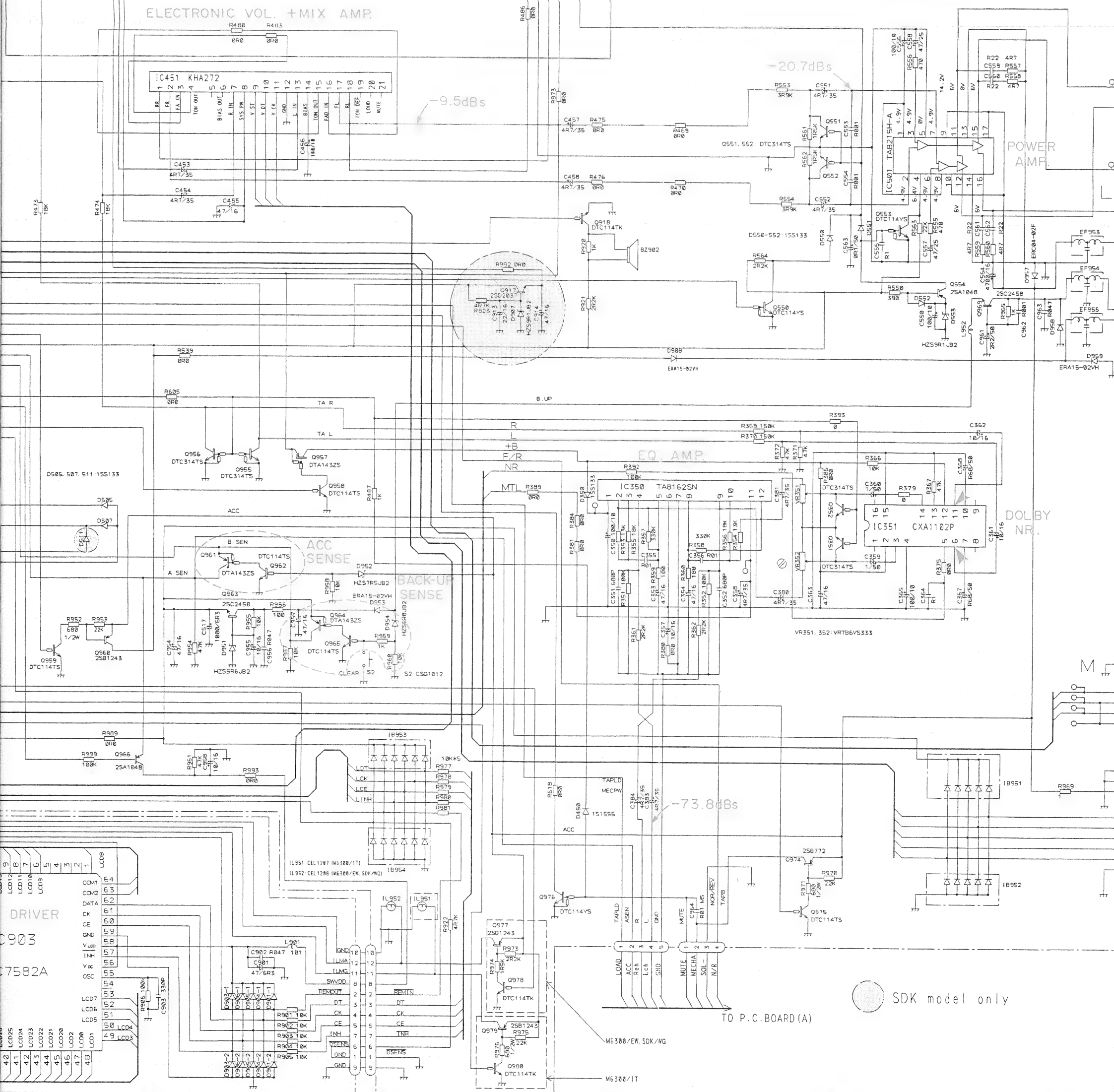
LC7582A

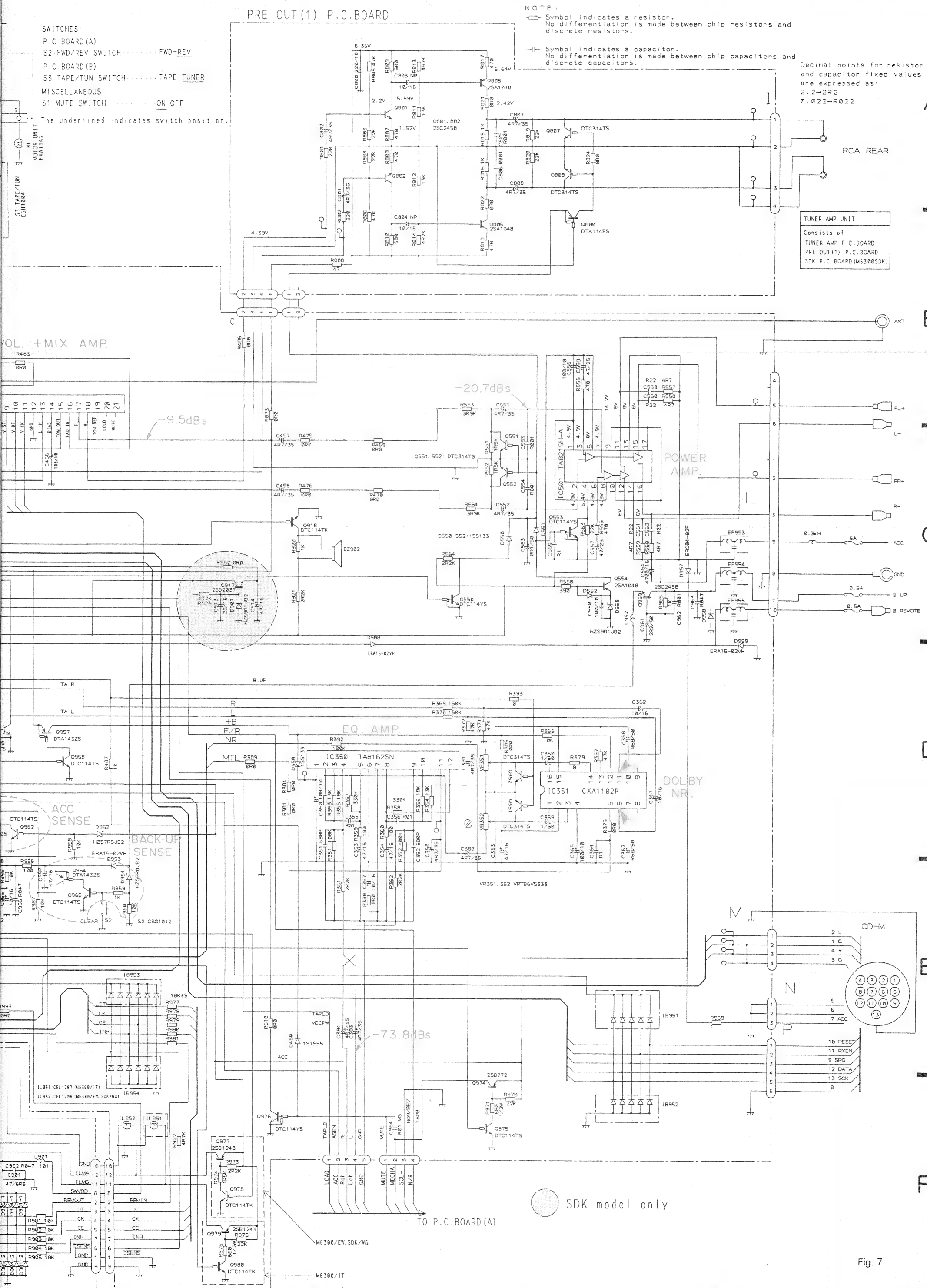
LCD CWA1124

KEY BOARD UNIT



ELECTRONIC VOL. + MIX AMP





A

B

C

D

E

F

11. SCHEMATIC CIRCUIT DIAGRAM (KEH-M6200/UC, M6250/ES)

TO TUNER AMP P.C. BOARD

P.C. BOARD (A)

TUNER AMP UNIT
Consists of
TUNER AMP P.C. BOARD
PRE OUT (1) P.C. BOARD

SWITCHES
P.C. BOARD (A)
S2 FWD/REV S
P.C. BOARD (B)
S3 TAPE/TUN
MISCELLANEOUS
S1 MUTE SWITCH

The underline

NOTE

Symbol indicates a resistor.
No differentiation is made between chip
discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip
discrete capacitors.

Decimal points for resistor
and capacitor fixed values
are expressed as:
2.2-2R2
0.022-R022

TUNER AMP P.C. BOARD

FM/AM TUNER UNIT

UC (Fig. 15), ES (Fig. 17)

HEAD UNIT EXA1163
TEST TAPE 315Hz 0dB
P.C. BOARD (B)

ELECTRONIC VOL.

IC451 KHA272

SYSTEM CONTROL

IC502

PD4343A

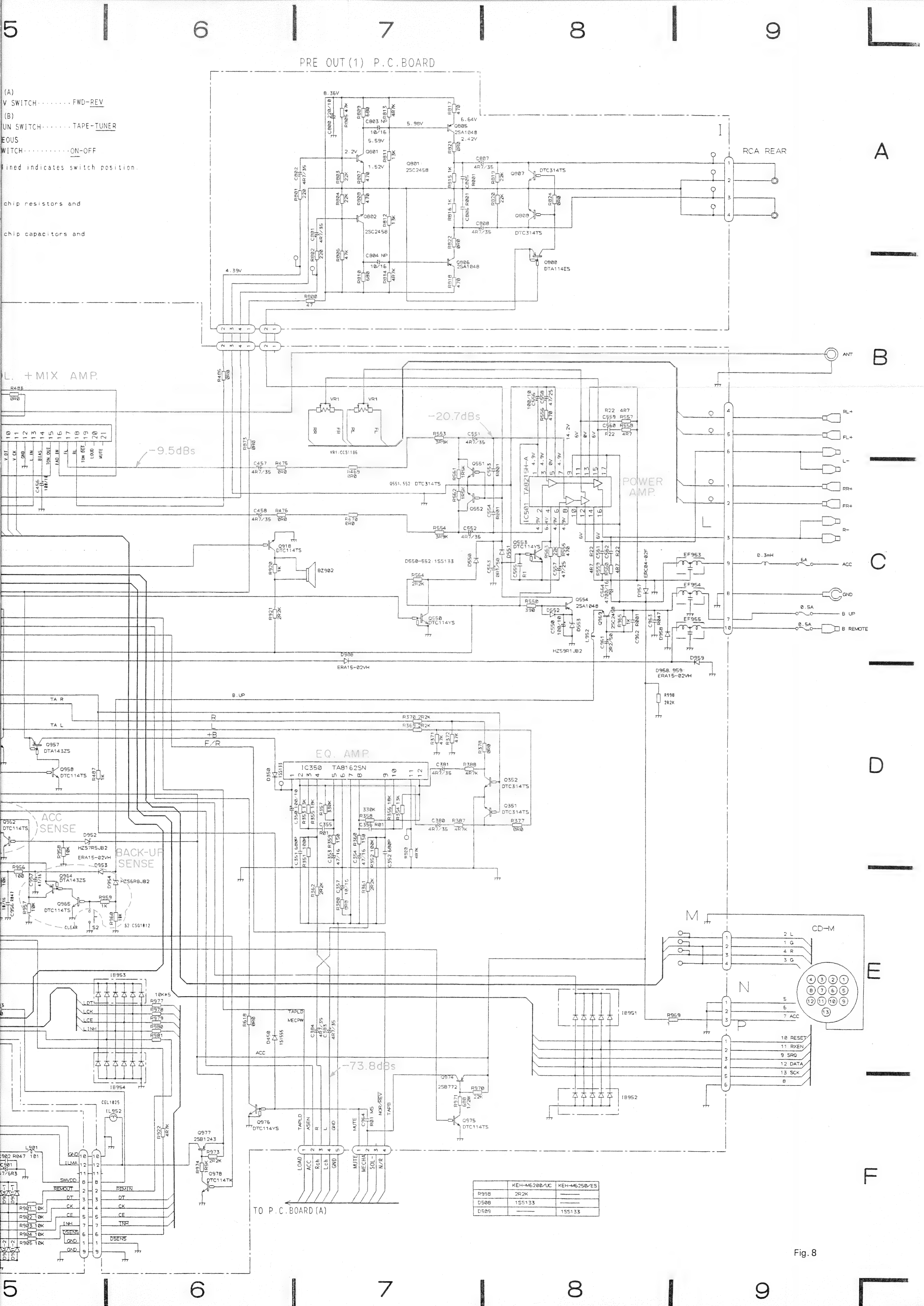
LCD DRIVER

IC903

LC7582A

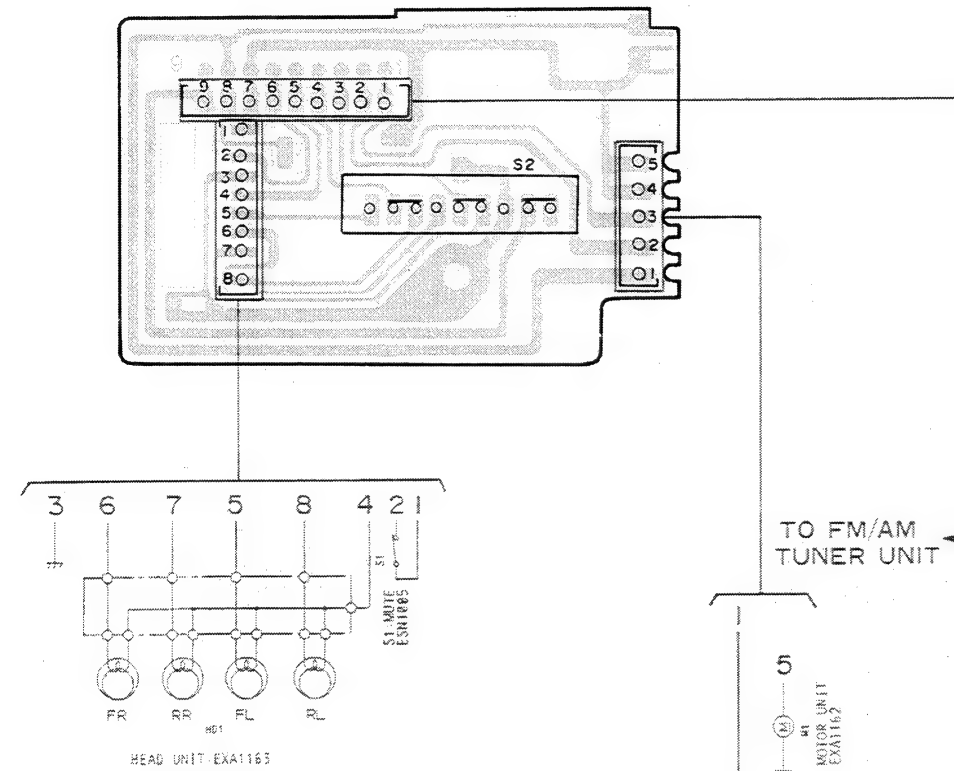
LCD CAW1124

KEY BOARD UNIT

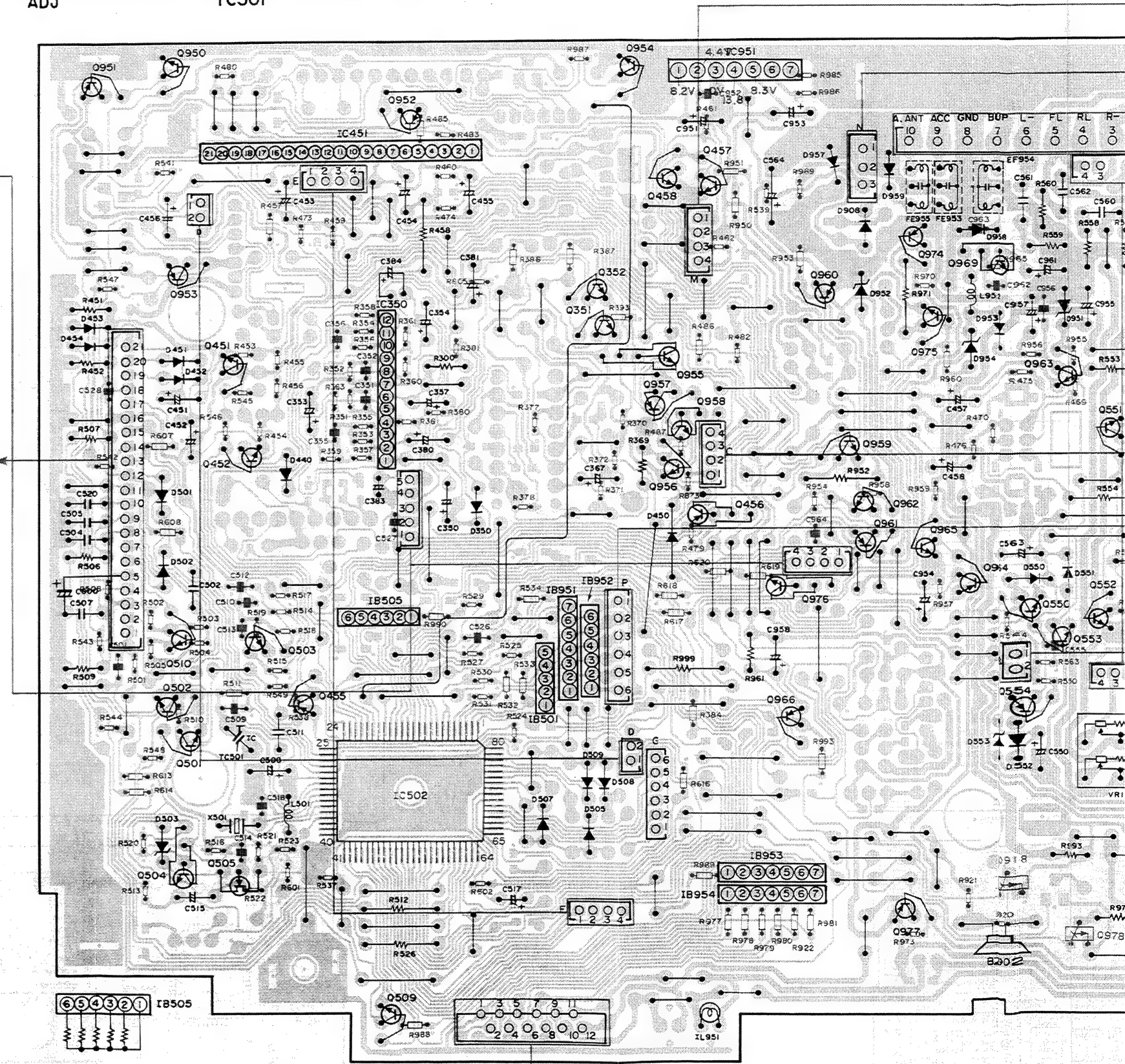
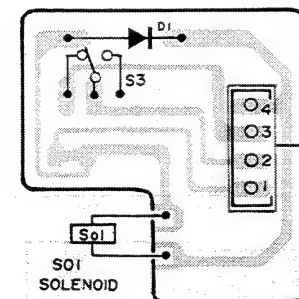


12. CONNECTION DIAGRAM (KEH-M6200/UC, M6250/ES)

TUNER AMP P.C. BOARD

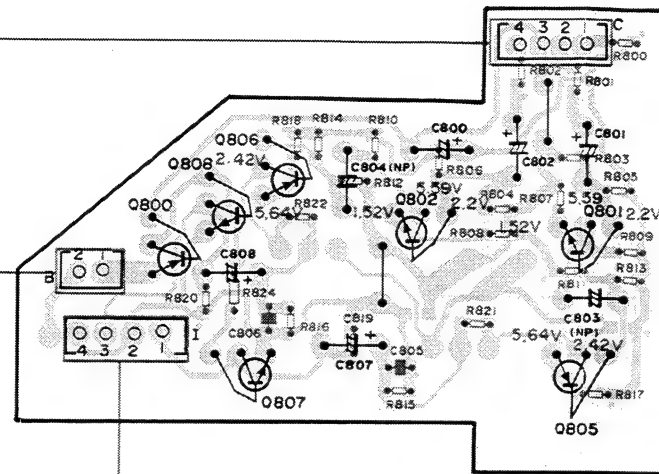
[illegible]

P.C. BOARD(B)

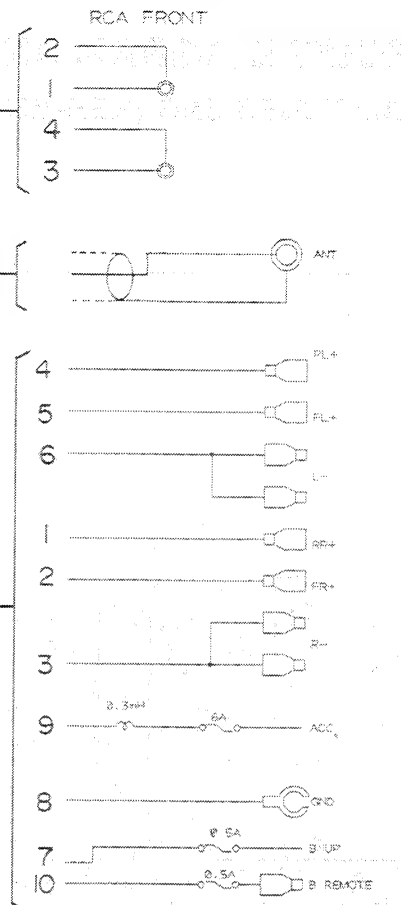


PRE OUT(1) P.C. BOARD

IC, Q Q800 Q808 Q806 Q802 Q801 Q805



TO FM/AM TUNER UNIT



KEY BOARD UNIT

IC, Q IC903 IC902 IC901
ADJ

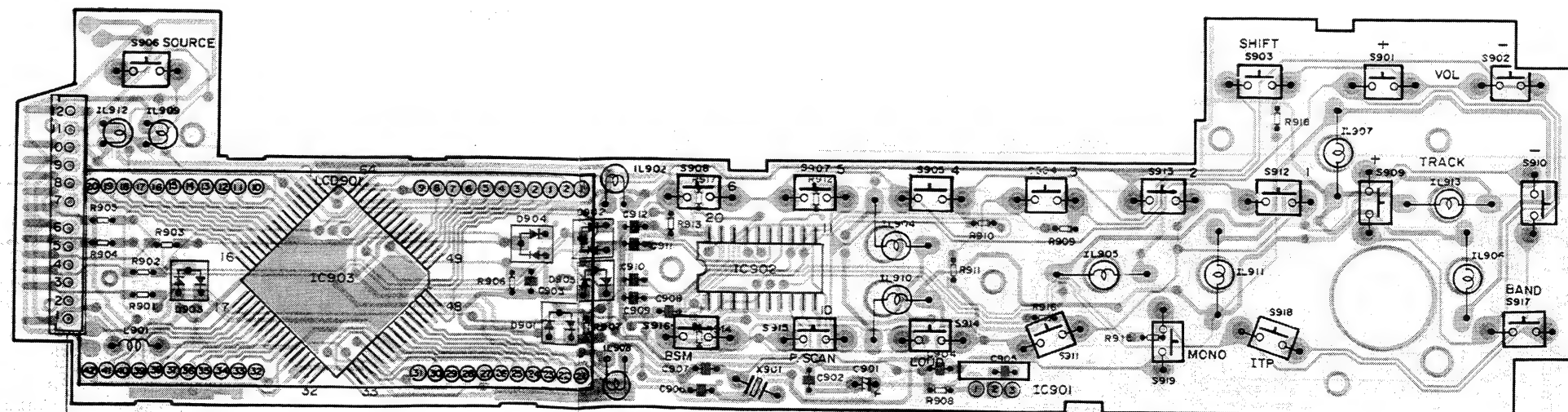


Fig. 9

13. CIRCUIT DIAGRAM AND P. C. BOARD PATTERN

13.1 FM/AM TUNER UNIT (KEH-M6300/EW, IT)

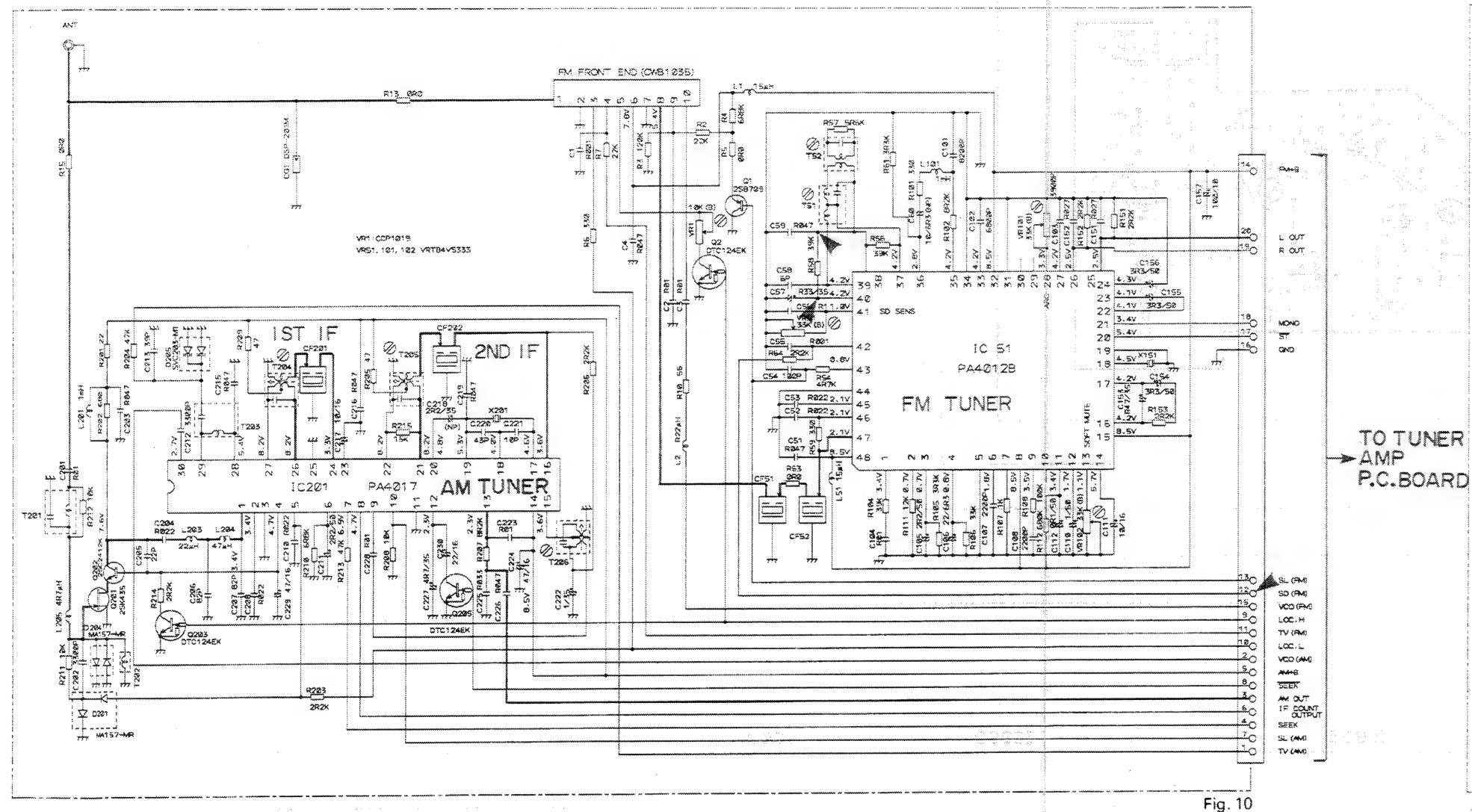




Fig. 10

NOTE:

 Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

 Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor
and capacitor fixed values
are expressed as:
2.2→2R2
0.022→R022

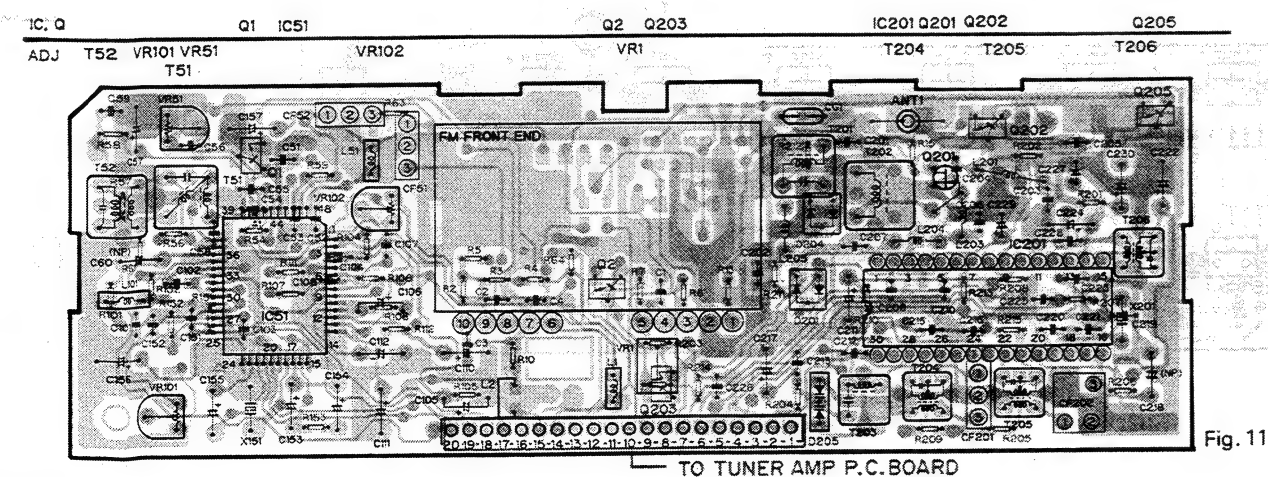
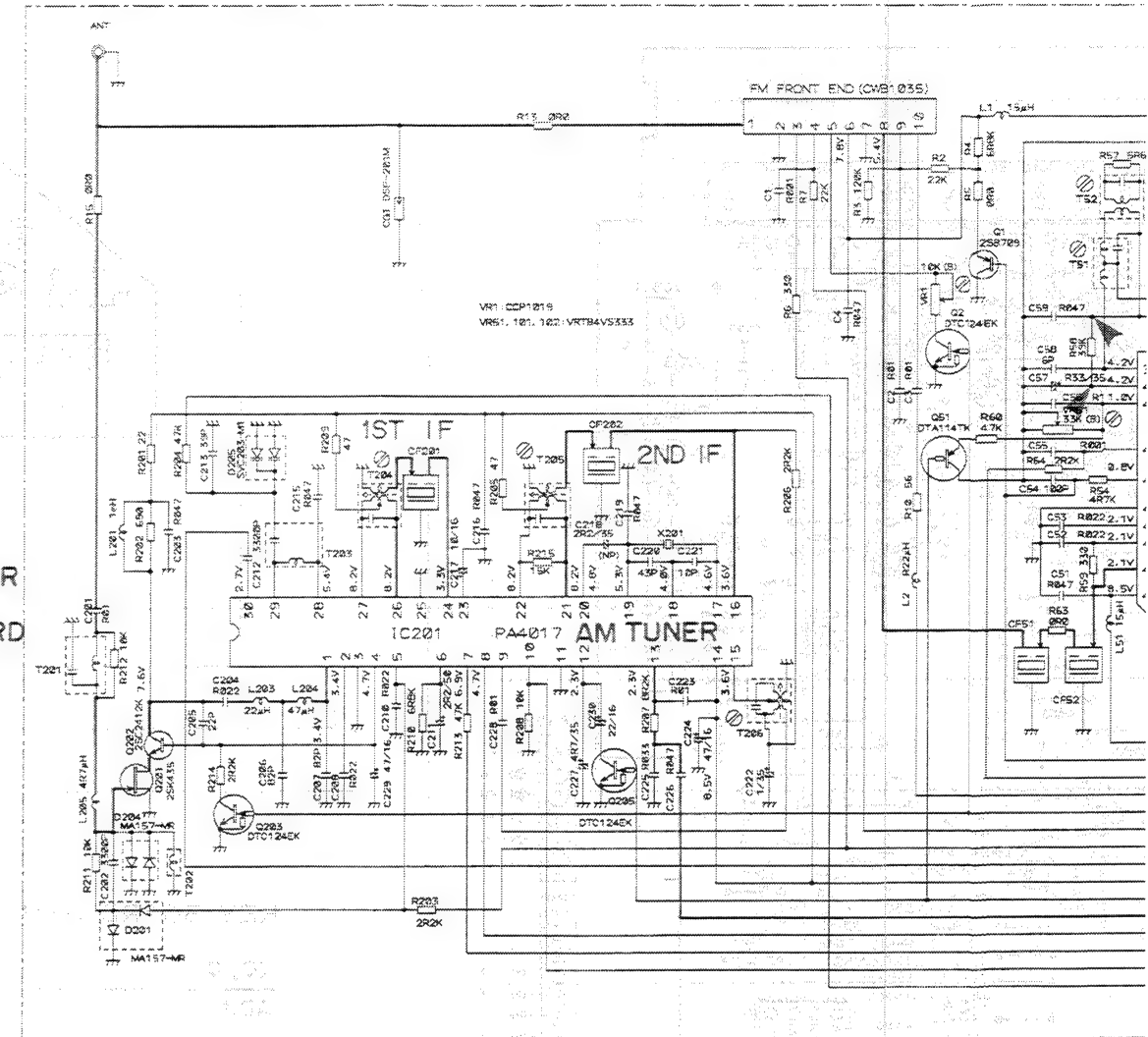


Fig. 11

13.2 FM/AM TUNER UNIT (KEH-M6300SDK/WG)

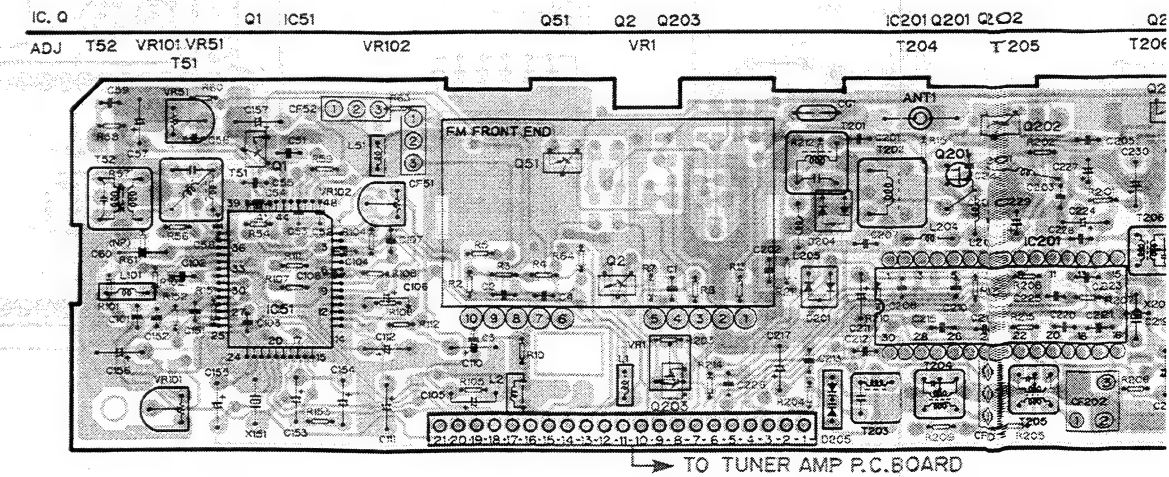


NOTE:

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- |- Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for Z and capacitor fixed are expressed as:

$Z: 2-2R2$
 $\emptyset: 022-R022$



→ TO TUNER AMP P.C.BOARD

13.3 FM/AM TUNER UNIT (KEH-M6200/UC)

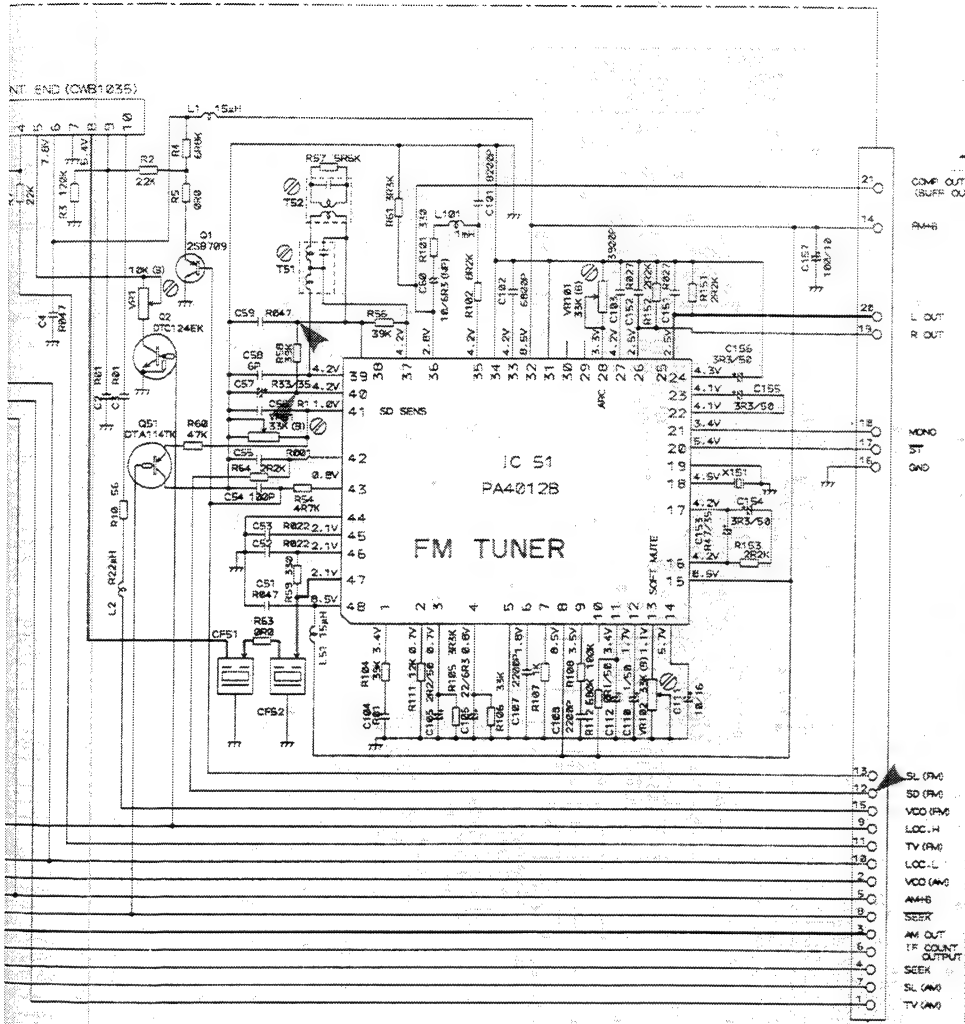


Fig. 12

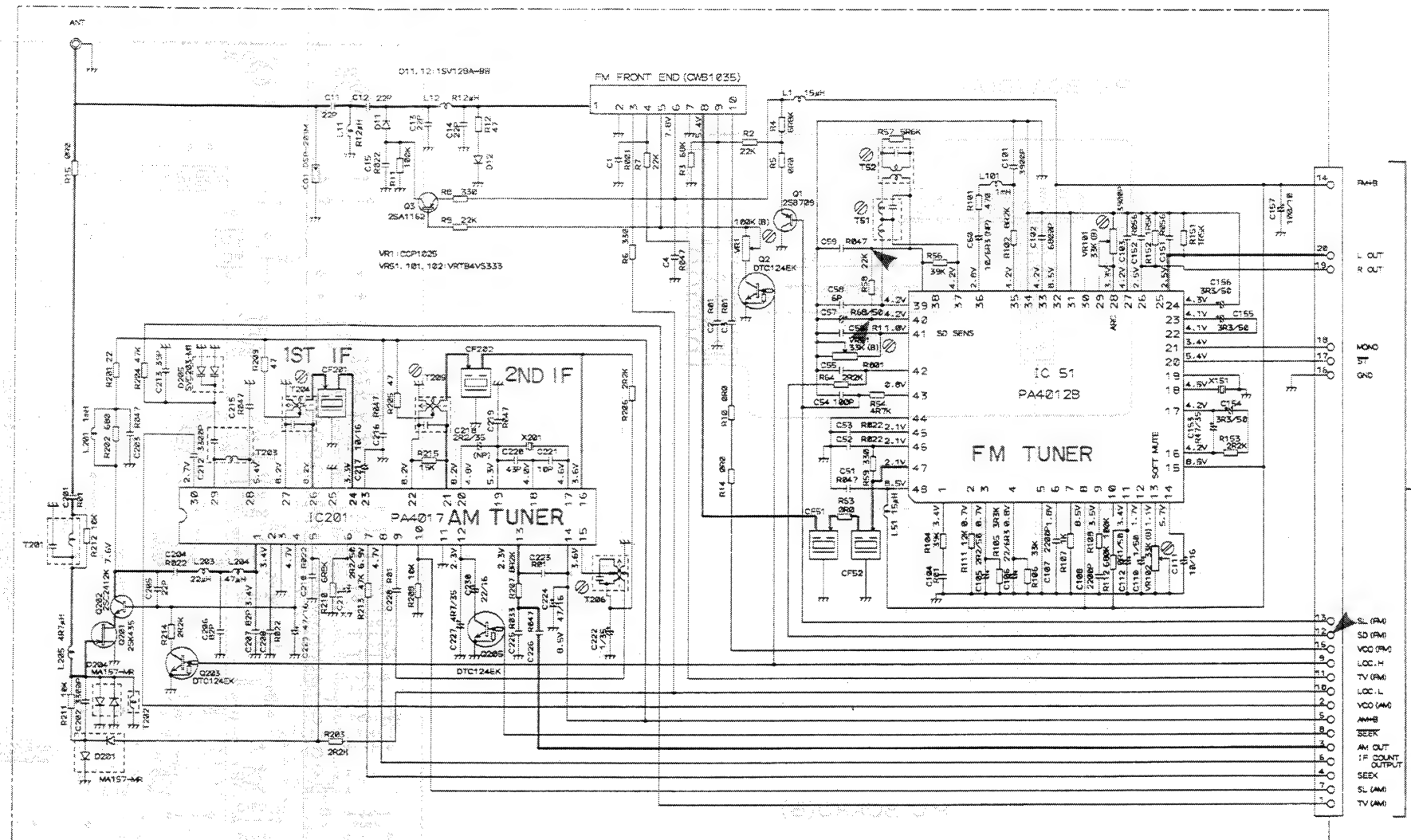


Fig. 14

NOTE
 □ Symbol indicates a resistor.
 No differentiation is made between chip resistors and discrete resistors.
 —||— Symbol indicates a capacitor.
 No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2-2R2
 0.022-R022

Decimal points for resistor and capacitor fixed values are expressed as:
 2.2-2R2
 0.022-R022

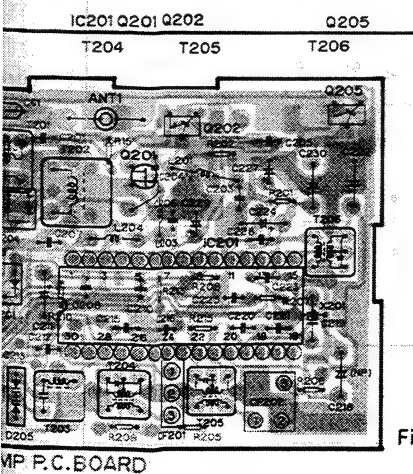


Fig. 13

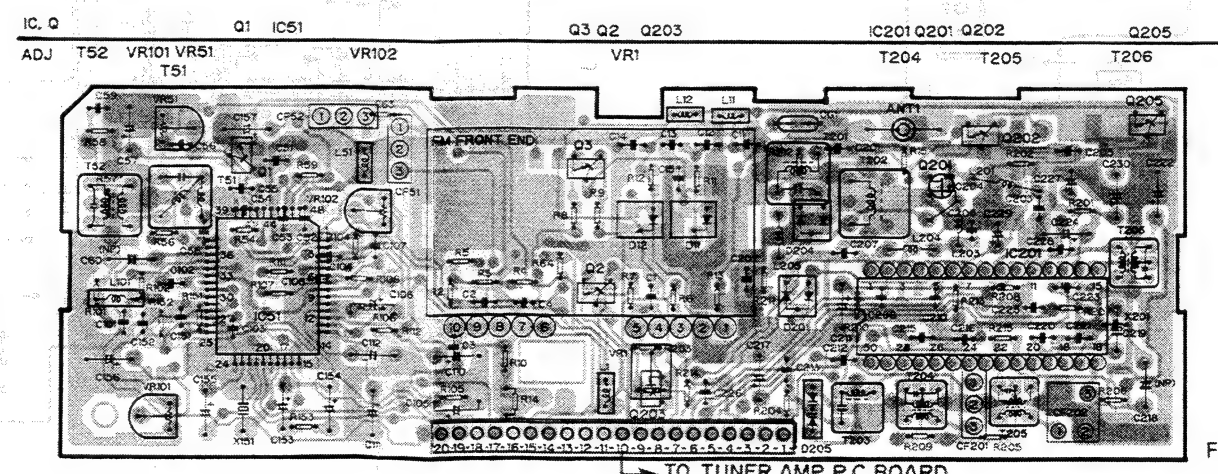
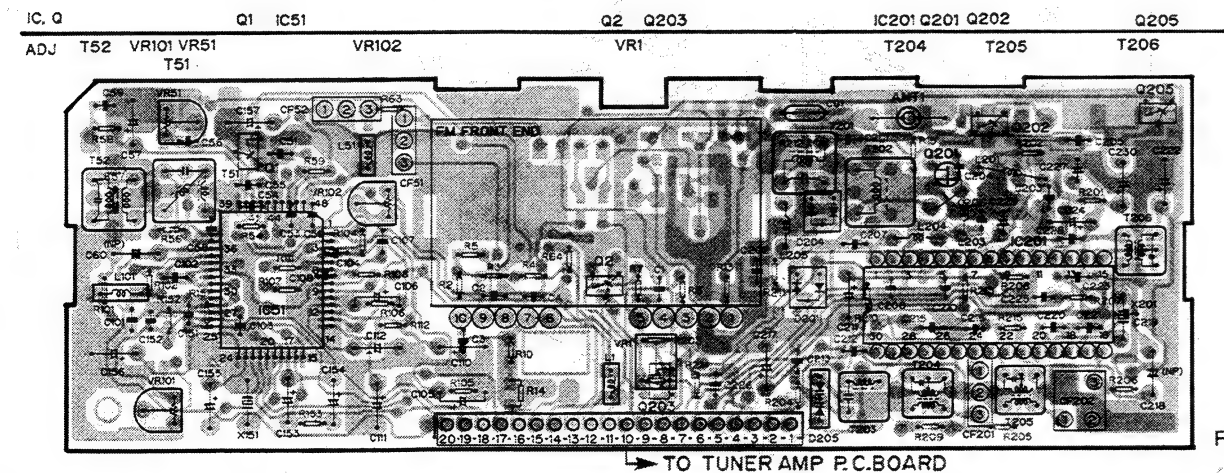
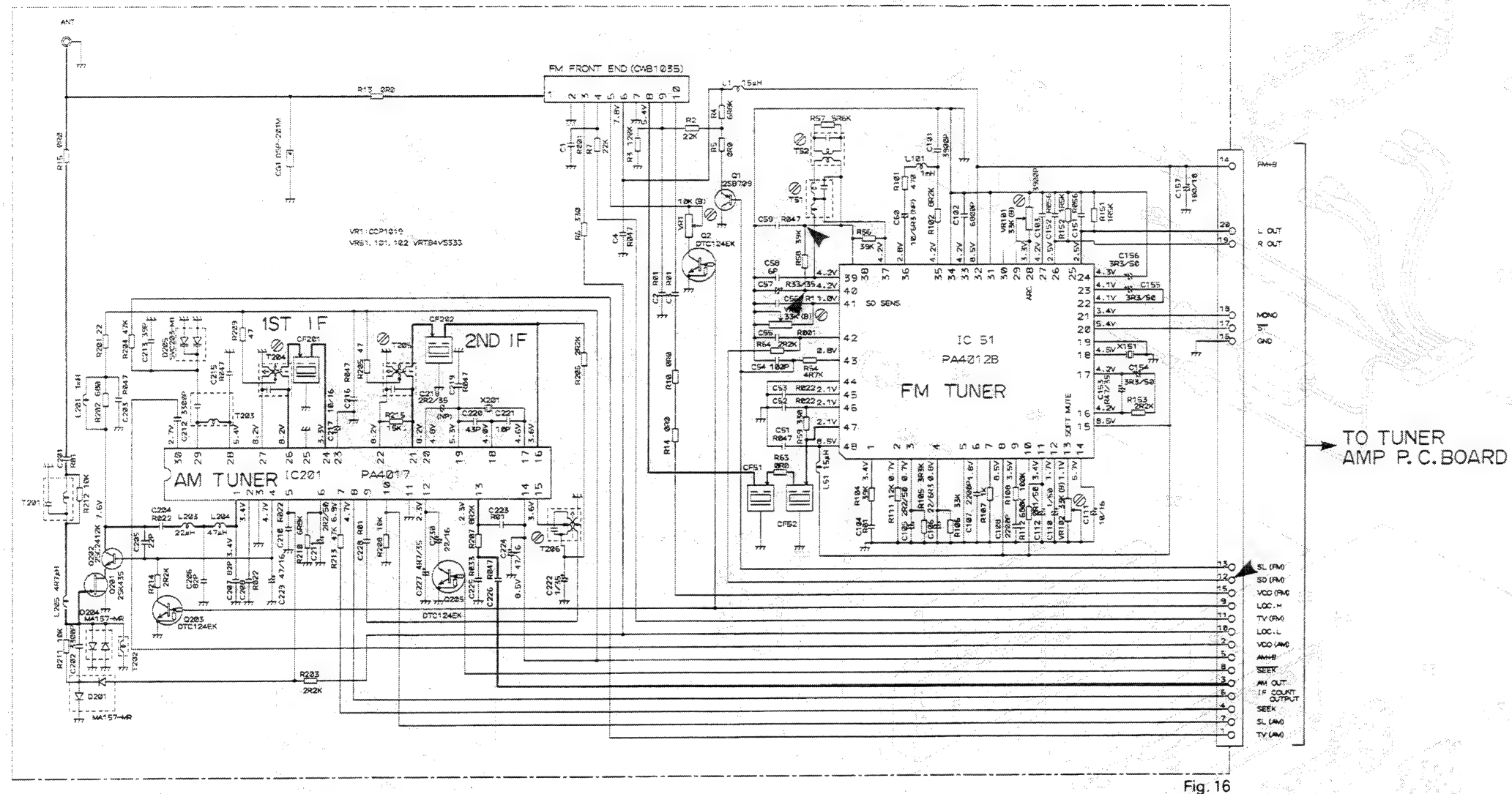


Fig. 15

TO TUNER AMP P.C. BOARD

13.4 FM/AM TUNER UNIT (KEH-M6250/ES)



14. CHASSIS EXPLODED VIEW

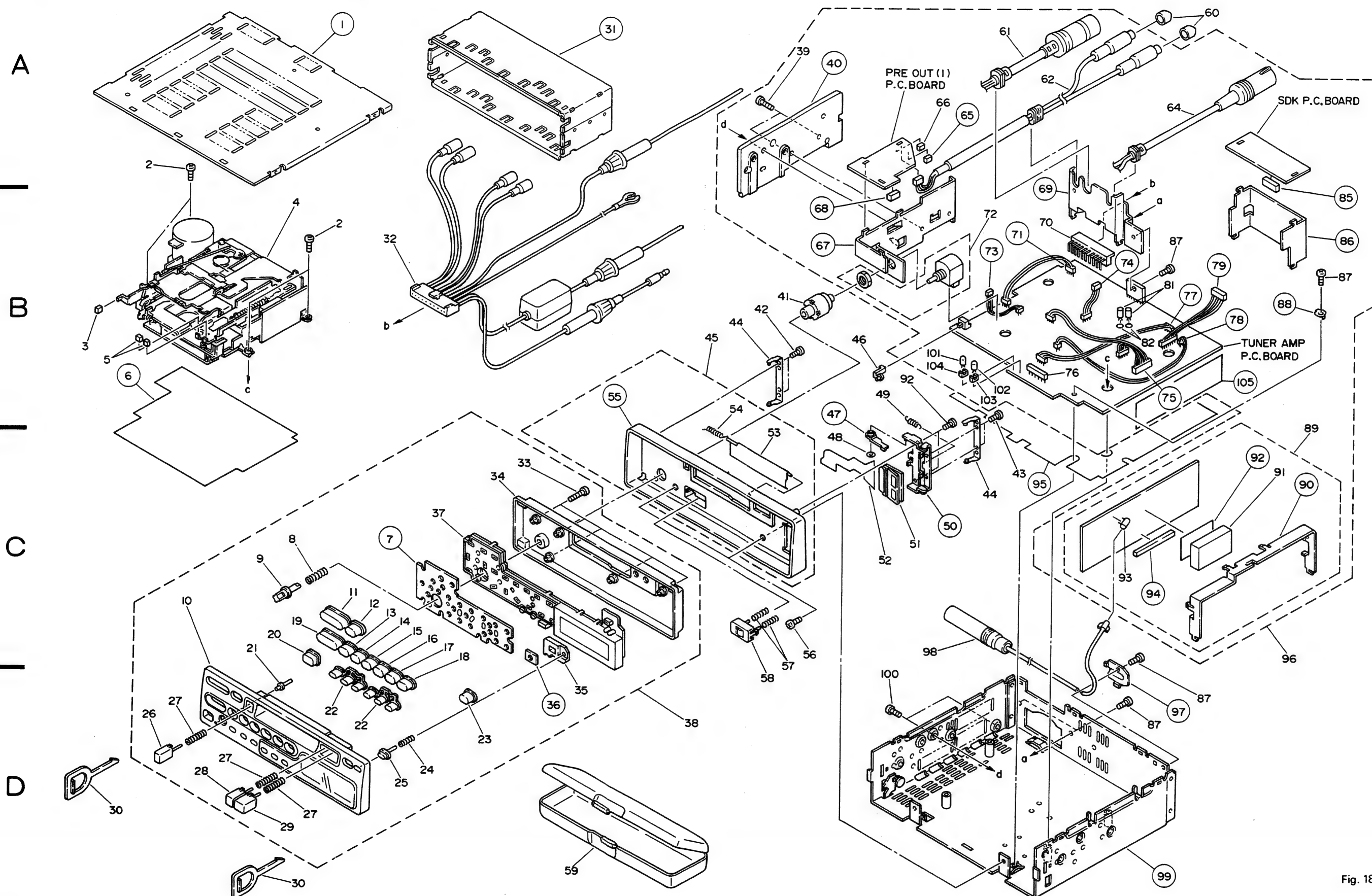


Fig. 18

•Parts List (KEH-M6300/EW)

NOTE:

- The parts marked with "●" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

Mark No.	Description	Part No.	Mark No.	Description	Part No.
	1 Case	CNB1431	45 Panel Unit	CXA4155	
	2 Screw	BMZ26P050FMC	46 Button	CAC2988	
	3 Button	CAC2819	47 Arm Unit	CXA4000	
●	4 Cassette Mechanism Assy	EXK1735	48 Washer	CBF1037	
			49 Spring	CBH1395	
	5 Button	CAC2820	50 Holder Unit	CXA3999	
	6 Cover	CNM3157	51 Socket	CKS1664	
	7 Cushion	CNM3155	52 P. C. Board	CNP2597	
	8 Spring	CBH1391	53 Door	CAT1360	
	9 Knob (Fader)	CAA1272	54 Spring	CBH1350	
	10 Grille Unit	CXA4147	55 Panel	CNS2260	
	11 Button (Vol)	CAC2821	56 Screw	CBA1154	
	12 Button (Shift)	CAC2822	57 Spring	CBH1393	
	13 Button (1)	CAC2811	58 Button Unit	CXA3850	
	14 Button (2)	CAC2812	59 Case	CNS2269	
	15 Button (3)	CAC2813	60 Cap	CNW-829	
	16 Button (4)	CAC2937	61 DIN Connector Cord	CDE3419	
	17 Button (5)	CAC2815	62 Connector	CDE3378	
	18 Button (6)	CAC2816	63		
	19 Button (Tune)	CAC2828	64		
	20 Button (-)	CAC2817	65 Plug	CKS-783	
	21 Button (Clear)	CAC2829	66 Plug	CKS1224	
	22 Button Unit	CXA4132	67 Holder	CNC3579	
	23 Button (SD)	CAC2826	68 Plug	CKS-785	
	24 Spring	CBH1390	69 Holder	CNC3581	
	25 Button	CAC2827	70 Plug	CKS-467	
	26 Button (Eject)	CAC2823	71		
	27 Spring	CBH1388	72		
	28 Button (REW)	CAC2824	73 Connector	CDE3208	
	29 Button (FF)	CAC2825	74 Connector	CDE3173	
	30 Handle	CNC3664	75 Connector	CDE3174	
	31 Holder	CNC3342	76 Connector	CKS1260	
	32 Cord	CDE3180	77 Connector	CDE3210	
	33 Screw	BPZ20P120FZK	78 Connector	CDE3222	
	34 Grille Cover	CNS2259	79		
	35 Lens	CNV2774	80		
	36 Cushion	CNM3156	81 Capacitor	CCH1016	
●	37 Key Board Unit	CWM2697	82 Spacer	CNW-662	
	38 Grille Assy	CXA4177	83		
	39 Screw	BMZ30P120FMC	84		
	40 Heat Sink	CNC3747	85		
	41 Knob	CAA1250	86		
	42 Screw	CBA1179	87 Screw	BMZ30P050FMC	
	43 Screw	PMZ20P030FMC	88 Holder	CNC2218	
	44 Holder Unit	CXA3998	● 89 FM/AM Tuner Unit	CWE1228	

Mark No.	Description	Part No.	Mark No.	Description	Part No.
90	Holder	CNC3395	100	Screw	BMZ30P080FMC
91	FM Front End	CWB1035	101	Lamp (Green)	CEL1207
92	Insulator	CNM2105	102	Lamp	CEL1208
93	Antenna Jack	CKX1010	103	Holder	CNV1906
94	Plug	CKS1628	104	Holder	CNV1906
			105	Insulator	CNM3199
95	Insulator	CNM2941			
● 96	Tuner Amp Unit	CWM2680			
97	Holder	CNC2913			
98	Antenna Cable	CDH1128			
99	Chassis Unit	CXA4191			

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.
8 Spring	----	----	----	CBH1391	CBH1391
9 Knob	----	----	----	CAA1272	CAA1272
10 Grille Unit	CXA4147	CXA4146	CXA4147	CXA4148	CXA4149
11 Button	CAC2821	CAC2821	CAC2821	CAC2932	CAC2821
17 Button	CAC2815	CAC2815	CAC2815	CAC2938	CAC2938
18 Button	CAC2816	CAC2816	CAC2816	CAC2939	CAC2939
19 Button	CAC2828	CAC2828	CAC2828	CAC2933	CAC2828
32 Cord	CDE3180	CDE3180	CDE3180	CDE3181	CDE3183
34 Grille Cover	CNS2259	CNS2259	CNS2259	CNS2151	CNS2151
● 37 Key Board Unit	CWM2697	CWM2697	CWM2700	CWM2699	CWM2699
38 Grille Assy	CXA4177	CXA4178	CXA4281	CXA4180	CXA4181
41 Knob	----	----	----	CAA1250	CAA1250
45 Panel Unit	CXA4155	CXA4155	CXA4155	CXA4157	CXA4156
62 Connector	CDE3378	CDE3378	CDE3378	CDE3165	CDE3165
66 Plug	CKS1224	CKS1224	CKS1224	----	----
71 Connector	----	----	----	CDE3171	CDE3171
72 Volume	----	----	----	CCS1186	CCS1186
79 Connector	----	CDE3170	----	----	----
85 Plug	----	CKS1040	----	----	----
86 Holder	----	CNC3577	----	----	----
● 89 FM/AM Tuner Unit	CWE1228	CWE1227	CWE1228	CWE1225	CWE1226
● 96 Tuner Amp Unit	CWM2680	CWM2681	CWM2762	CWM2683	CWM2684
99 Chassis Unit	CXA4191	CXA4290	CXA4191	CXA4191	CXA4191
101 Lamp	----	----	CEL1207	----	----
102 Lamp	CEL1208	CEL1208	----	CEL1025	CEL1025
103 Holder	CNV1906	CNV1906	----	CNV1906	CNV1906
104 Holder	----	----	CNV1906	----	----

15. KEY BOARD UNIT EXPLODED VIEW

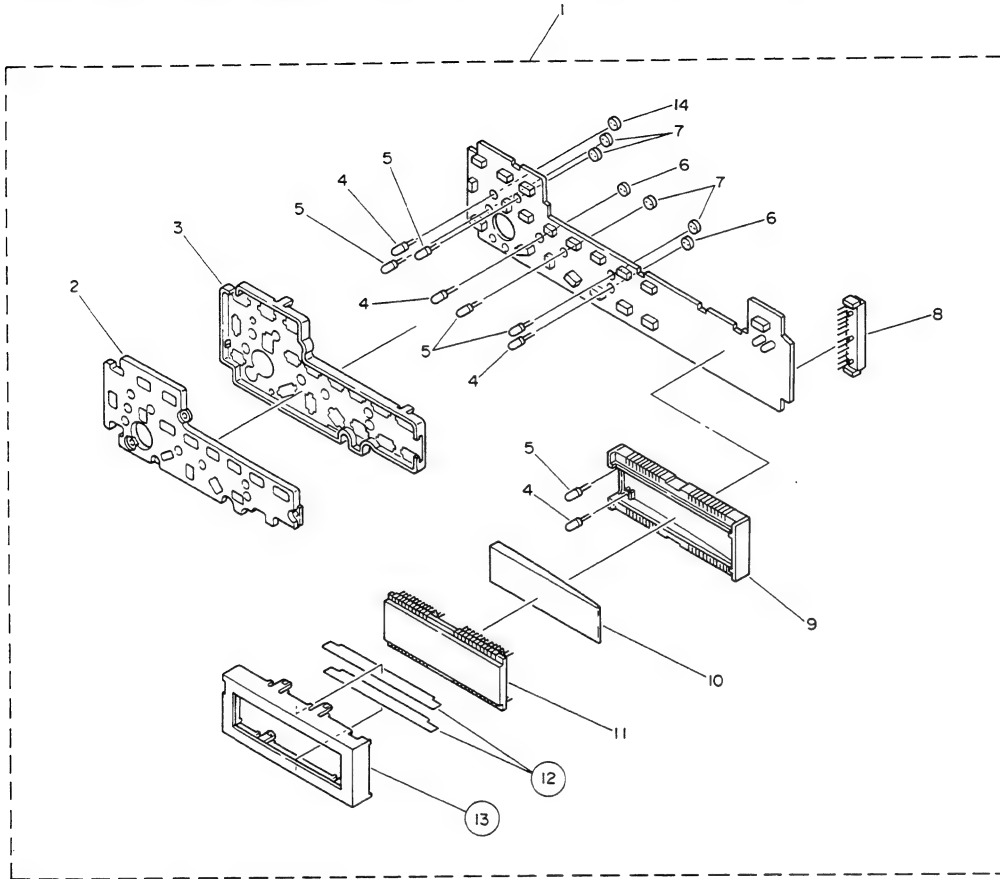


Fig. 19

•Parts List (KEH-M6300/EW)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
①	1 Key Board Unit	CWM2697	6	Bush	CNV1859
	2 Lens	CNV2688	7	
	3 Holder	CNV2684	8	Plug	CKS1663
	4 Lamp	CEL1208	9	Holder	CNV2685
	5		10	Lens	CNV2686
			11	LCD	CAW1124
			12	Insulator	CNM3051
			13	Holder	CNC3576
			14	Spacer	CNM1642

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.
① 1 Key Board Unit	CWM2697	CWM2697	CWM2700	CWM2699	CWM2699
4 Lamp	CEL1208	CEL1208	----	CEL1025	CEL1025
5 Lamp	----	----	CEL1207	----	----
6 Bush	CNV1859	CNV1859	----	CNV1859	CNV1859
7 Bush	----	----	CNV1859	----	----
14 Spacer	CNM1642	CNM1642	----	CNM1642	CNM1642

16. CASSETTE MECHANISM ASSY EXPLODED VIEW

•Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Gear	ENV1212	46	Gear	ENV1262
2	Gear	ENV1211	47	Spring	EBH1337
3	Gear	ENV1203	48	Arm	ENC1236
4	Washer	CBF1037	49	Lever Unit	EXA1173
5	Washer	CBF1038	50	Arm	ENC1237
6	Spring	EBH1338	51	Spring	EBH1335
7	Screw	JFZ17P035FNI	52	Shaft	
8	Shaft	ELA1259	53	Screw	JFZ20P025FNI
9	Gear	ENV1230	54	Collar	ELA1229
10	Gear	ENV1274	55	Screw	JFZ20P040FNI
11	Gear	ENV1264	56	Washer	EBF1015
12	Gear	ENV1204	57	Spring	EBH1372
13	Screw	JFZ17P018FNI	58	Collar	ELA1220
14	Collar	ELA1244	59	Lever	ENC1269
15	Arm	ENC1241	60	Spring	EBH1361
16	Arm	ENV1261	61	Gear	ENV1205
17	Sub Chassis Unit	EXA1169	62	Screw	CBA1054
18	Screw	BMZ20P025FMC	63	Screw	CBA1038
19	Spring (Black)	EBH1306	64	Screw	CBA1015
20	Tube		65	Plug	CKS1056
21	Gear Unit	EXA1159	66	Head Unit	EXA1163
22	Spring	EBH1308	67	P. C. Board	ENP1042
23	Holder	ENC1205	68	Switch	ESN1005
24	Lever	ENC1243	69	Spring	EBH1334
25	Lever	ENC1235	70	Gear	ENV1208
26	Spring	EBH1307	71	Spring	EBH1333
27	Real Unit	EXA1167	72	Arm	ENC1240
28	Washer	YE15FUC	73	Screw	BSZ20P040FMC
29	Arm	ENC1221	74	Arm	ENV1265
30	Spring	EBH1305	75	Spring	EBH1336
31	Spring	EBH1364	76	Arm Unit	EXA1171
32	Frame	ENC1204	77	Flywheel Unit	EXA1161
33	Arm	ENC1215	78	Gear	ENV1229
34	Shaft	ELA1251	79	Belt	ENT1020
35	Lever	ENV1222	80	Arm	ENV1206
36	Head Base Unit	EXA1203	81	Spring	EBH1317
37	Washer	YE12FUC	82	Chassis Unit	EXA1168
38	Solenoid	EXP1008	83	Screw	PMS26P025FUC
39	Spring	EBH1353	84	Pulley	ENV1207
40	Lever Unit	EXA1172	85	Gear	ENV1209
41	Bracket	ENC1239	86	Belt	ENT1018
42	Spring	EBH1339	87	Spring (Silver)	EBH1322
43	Screw	EBA1023	88	Lever (FF)	ENC1244
44	Screw	BMZ20P025FMC	89	Spring (Brown)	EBH1365
45	Spring	EBH1340	90	Motor Unit	EXA1162

•Cassette Mechanism Assy

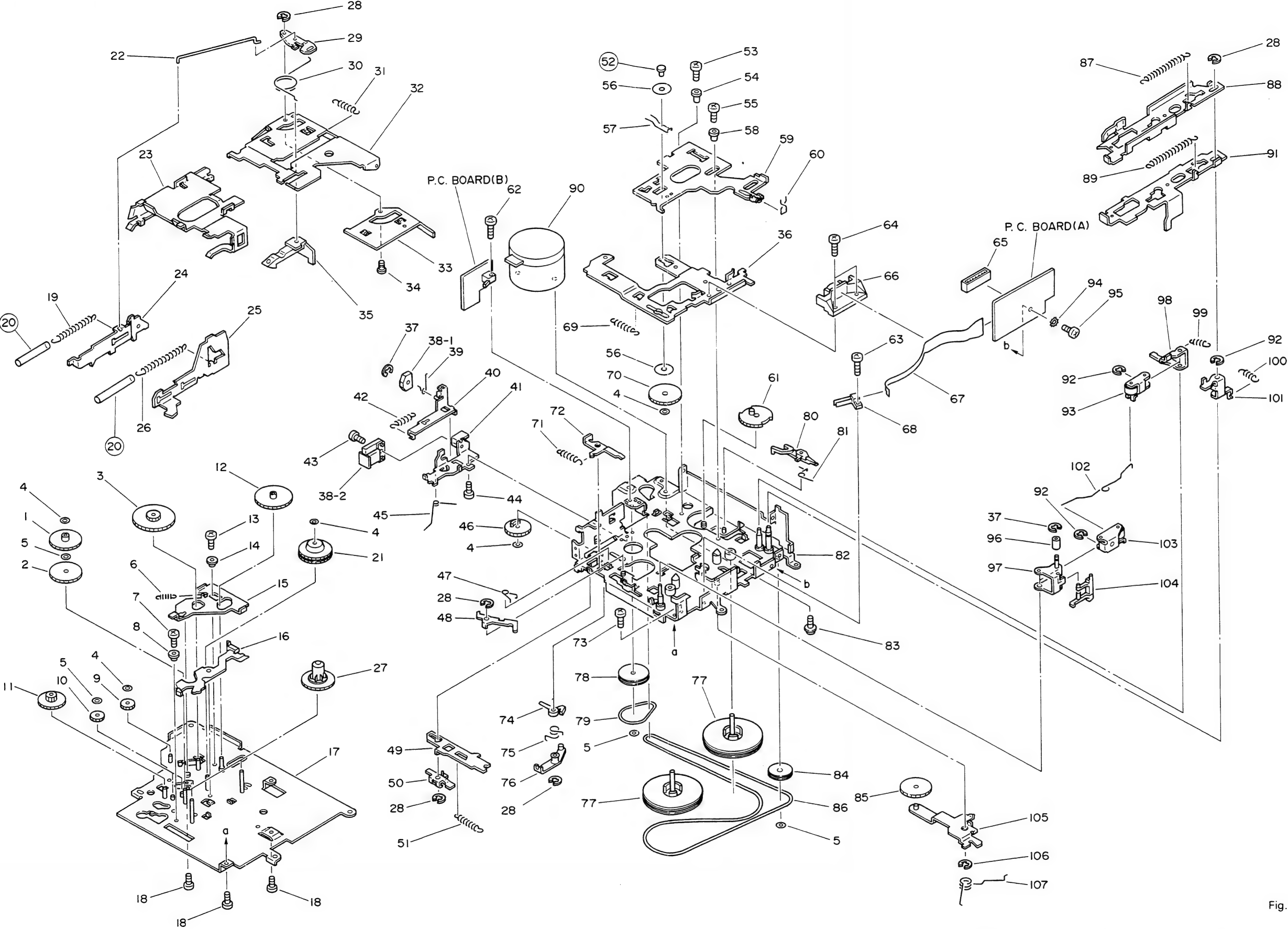


Fig. 20

Mark No.	Description	Part No.	Mark No.	Description	Part No.
91	Lever (REW)	ENC1245	101	Arm	ENC1264
92	Washer	YE20FUC	102	Spring	EBH1366
93	Pinch Roller Unit	EXA1193	103	Pinch Roller Unit	EXA1194
94	Washer	WH23FMC	104	Arm	ENV1227
95	Screw	BSZ23P040FMC	105	Arm Unit	EXA1155
96	Roller	ELA1247	106	Washer	YE30FUC
97	Arm Unit	EXA1166	107	Spring	EBH1310
98	Arm	ENC1266			
99	Spring	EBH1312			
100	Spring	EBH1311			

17. PACKING METHOD

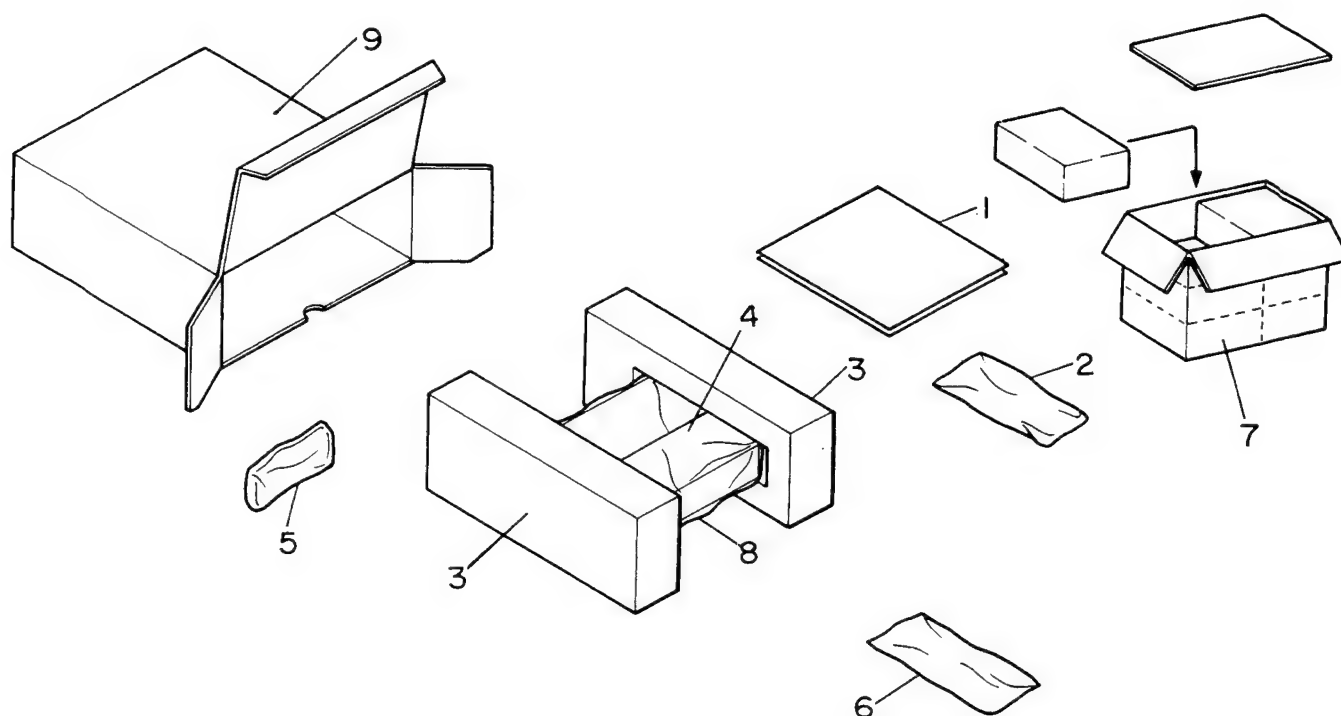


Fig. 21

•Parts List (KEH-M6300/EW)

* :Non spare part

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1-1	Owner's Manual	CRD1478	6-3	Cord	CDE1289
1-2		6-4	Handle(×2)	CNC3664
* 1-3	Card	CRY-062	6-5	Strap	CNF-1.11
2	Cord	CDE3180	6-6	Bush	CNV1009
3	Styrofoam	CHP1405	6-7	Nut(×2)	NF50FMC
* 4	Holder	CNC3342	* 7	Contain Box	CHL1993
5	Case	CNS2269	8	Cover	CEG1092
6	Accessory Assy	CEA1633	9	Carton	CHG1993
6-1	Screw(×1)	CBA-102			
6-2	Screw(×1)	CBA1002			

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
No. Description	Part No.	Part No.	Part No.	Part No.	Part No.
1-1 Owner's Manual	CRD1478	CRD1479	CRD1493	CRD1487	CRD1481
1-3 Installation Manual	----	CRD1491	CRD1491	----	----
* 1-4 Card	CRY-062	CRY-062	CRY-062	ARY1008	----
2 Cord	CDE3180	CDE3180	CDE3180	CDE3181	CDE3183
7 Contain Box	*CHL1993	*CHL1994	*CHL2013	*CHL1995	*CHL1996
9 Carton	CHG1993	CHG1994	CHG2013	CHG1995	CHG1996

Part No.	Model	Language
CRD1478	KEH-M6300/EW	English, French, German, Spanish, Portuguese
CRD1479	KEH-M6300SDK	French, German
CRD1493	KEH-M6300/IT	English, French, Italian
CRD1487	KEH-M6200/UC	English, French
CRD1481	KEH-M6250/ES	English, French, Spanish, Arabic

18. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : FM/AM Tuner Unit (KEH-M6300SDK/W6)

MISCELLANEOUS

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
IC	51				PA4012B	R	2	7		RS1/10S223J	
IC	201				PA4017	R	3			RS1/10S124J	
Q	1			Chip Transistor	2SB709	R	4			RS1/10S682J	
Q	2			Chip Transistor	DTC124EK	R	5	13	63	RS1/10S090J	
Q	51			Chip Transistor	DTA114TX-94	R	6	59	101	RS1/10S331J	
Q	201				2SK435	R	10			RS1/10S560J	
Q	202				2SC2412K	R	15			RS1/10S080J	
Q	203	205		Chip Transistor	DTC124EK	R	54			RS1/10S472J	
D	201	204		Chip Diode	MA157-MR	R	56	58	104	RS1/10S393J	
D	205				SVC203-M1	R	57			RS1/10S562J	
L	1	51		Inductor	CTF1241	R	60			RS1/10S473J	
L	2			Inductor	CTF1086	R	61	105		RS1/10S332J	
L	101			Inductor	CTF1126	R	64			RS1/10S222J	
L	201			Inductor	CTF1084	R	102			RS1/10S822J	
L	203			Ferri-Inductor	LAU220K	R	106			RS1/10S333J	
L	204			Ferri-Inductor	LAU470K	R	107			RS1/10S102J	
L	205			Ferri-Inductor	LAU4R7K	R	108			RS1/10S104J	
T	51			Coil	CTE1021	R	111			RS1/10S123J	
T	52			Coil	CTE1022	R	112			RS1/10S684J	
T	201			Coil	CTB1020	R	151	152	153	RS1/10S222J	
T	202			Coil	CTB1004	R	201			RS1/10S220J	
T	203			Coil	CTB1040	R	202			RS1/10S681J	
T	204			Coil	CTE1037	R	203	206	214	RS1/10S222J	
T	205			Coil	CTE1038	R	204	213		RS1/10S473J	
T	206			Coil	CTE1039	R	205	209		RS1/10S470J	
CG	1				DSP-201M-S008	R	207			RS1/10S822J	
CF	51	52		Ceramic Filter	CTF-182	R	208	211	212	RS1/10S103J	
CF	201			Ceramic Filter	CTF1041	R	210			RS1/10S682J	
CF	202			Filter	CTF1085	R	215			RS1/10S153J	
X	151			Ceramic Resonator	CSS1055						
X	201			Crystal Resonator	CSS1014						
VR	1			Semi-fixed	CCP1019						
VR	51	101	102	Semi-fixed 33kΩ (B)	VRTB4VS333						
				FM Front End	CWB1035						

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	1	CKSQYB102K50	IC	701	KHA142
C	2	CKSQYB103K50	IC	951	TA8214K
C	4	CKSQYF473Z25	Q	351 352 551 552 807 808	DTC314TS
C	51	CKSQYF473Z25	Q	451 452 453 454	DTC114TS
C	52	CKSQYB223K25	Q	455 509	DTA114TS
C	54	CCSQSL101J50	Q	456 800	DTA114ES
C	55	CKSQYB102K50	Q	457 458 502 506 950 958 959 962 975	DTC114TS
C	56	CKSQYF104Z25	Q	501 504 703 963 969	2SC2458
C	57	CSZAR33K35	Q	503	2SC2498
C	58	CCSQCH060D50	Q	505	2SK330
C	60	CEALNP100M6R3	Q	510	2SC3113
C	101	CKSQYB822K50	Q	550 553 976	DTC114YS
C	102	CKSQYB682K50	Q	554 805 806 966	2SA1048
C	103	CKSQYB392K50	Q	701	DTB123YS
C	105	CEA2R2M50LL	Q	702	DTC114WS
C	106	CEA220M6R3LL	Q	801 802	2SC2458
C	107	CKSQYB222K50	Q	917	2SD2037
C	110	CEA010M50LL	Q	918 978	DTC114TK
C	111	CEA100M16LL	Q	951 952 953	DTB123YS
C	112	CEA0R1M50LL	Q	954	DTC114TS
C	151	CKSQYB273K25	Q	955 956	DTC314TS
C	153	CSZAR47M35L	Q	957 961 964	DTA143ZS
C	154	CEA3R3M50LL	Q	960 977	2SB1243
C	157	CEA101M10LS	Q	965	DTC114TS
C	201	CKSQYB103K25	Q	974	2SB772
C	202	CKSQYB332K50	D	350 440 505 506 507 511	1SS133
C	203	CKSQYF473Z25	D	450	1S1555
C	204	CKSQYB223K25	D	451 452 453 454 501 502 550 551 552	1SS133
C	205	CCSQCH220J50	D	503 700	HZS3R0EB2
C	206	CCSQCH820J50	D	553 907	HZS9R1JB2
C	211	CEA2R2M50LL	D	908	ERA15-02VH
C	213	CCSQCH390J50	D	951	HZS5R6JB2
C	217	CEA100M16LL	D	952	HZS7R5JB2
C	218	CEA2R2M35NP1LL	D	953 958 959	ERA15-02VH
C	220	CCSQCH430J50	D	954	HZS6R8JB2
C	221	CCSQCH100D50	D	957	ERC04-02F
C	222	CSZA010K35L	L	501	LAU2R2M
C	224	CEA470M16LL	L	502	LAU330K
C	225	CKSQYB333K25	IB	501	CWW1302
C	227	CEA4R7M35LS	IB	505	CWW1240
C	229	CEA470M16LS	IB	951	CWW1301
C	230	CEA220M16LL	IB	952	CWW1128
			IB	953	CWW1292
			IB	954	CWW1291
			X	501	CSS1011

Unit Number :

Unit Name : Tuner Amp Unit (KEH-M6300SDK/WG)

Tuner Amp Unit

Consists of

- Tuner Amp P. C. Board
- SDK P. C. Board

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
IC	350	TA8162SH	R	351 352	RS1/10S104J
IC	351	CXA1102P	R	353 354	RS1/10S133J
IC	451	KHA272	R	355 356	RS1/10S183J
IC	501	TA8215H-A	R	357 358	RS1/10S334J
IC	502	PD4302	R	359 360	RS1/10S181J

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
X	701			Ceramic Resonator	CSS1019
VR	351 352			Semi-fixed 33kΩ (B)	VRT86VS333
S	2			Switch (Clear)	CSG1012
IL	952			Lamp (Orange)	CEL1208
EF	953 954 955				CCG1003
BZ	902			Buzzer	CPV1013

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	361	362	502	522	RS1/10S222J	R	922				RS1/8S472J
R	366	501	504	955 957 958	RS1/10S103J	R	923				RS1/10S472J
R	367	537	954		RS1/10S473J	R	950				RS1/8S0R0J
R	369				RD1/4PS154JL	R	951				RS1/8S681J
R	370				RS1/10S154J	R	952	971			RD1/2PS681JL
R	371	372			RS1/10S473J	R	953				RS1/8S223J
R	375				RS1/10S0R0J	R	959	965			RS1/10S102J
R	379				RS1/10S0R0J	R	960	977 978 979 980 981			RS1/8S103J
R	380	381	822	873	RS1/10S0R0J	R	969				RS1/10S1R0J
R	382	383	384	614 615 616 988 989 990	RS1/8S0R0J	R	974				RD1/4PS152JL
R	385	386	486	618 992	RS1/8S0R0J	R	999				RD1/4PM104J
R	389	824	993		RS1/8S0R0J	CAPACITORS					
R	390				RS1/8S0R0J	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	392				RS1/10S104J	C	350				CEA101M10LS
R	393				RS1/8S0R0J	C	351	352			CCSQCH681J50
R	451	452	509	961	RD1/4PS473JL	C	353	354 363 701 705 914 954 957			CEA470M16LS
R	453	454			RS1/10S102J	C	355	356 510 514			CKSQYB103K50
R	455	456	524	527 529 805 806	RS1/10S473J	C	357	361 362 955 958			CEA100M16LS2
R	457				RS1/8S223J	C	358	380 381 451 452 453 454 457 458 706			CEA4R7M35LS
R	458				RD1/4PM223J	C	359	360			CEA010M50LS2
R	459	460			RS1/10S563J	C	364	555			CKSQYF104Z25
R	461	462			RS1/10S333J	C	365				CEA101M10LS
R	469	470	475	476 541 542 547	RS1/10S0R0J	C	367	368			CEAR68M50LS2
R	473	474			RS1/10S183J	C	383	384	4.7 μ F/35V		CCH1016
R	479	483	605	987	RS1/10S0R0J	C	455	953			CEA470M16L2
R	480	482			RS1/10S0R0J	C	456				CEA100M16LS2
R	485	606	607	608 610 611 613	RS1/8S0R0J	C	500				CASA4R7M10
R	487	520	521	815 816 920 985 986	RS1/10S102J	C	501				CCG1008
R	503	563	819	820 970	RS1/10S223J	C	502	504 505 507 520 702			CKPYY103M16L
R	505	801	802		RS1/10S221J	C	509	526			CKSYB102K50
R	506				RD1/4PS222JL	C	511				CKPYB101K50L
R	507				RD1/4PS392JL	C	512				CKSYB681K50
R	508				RS1/10S823J	C	513				CCSQCH101J50
R	510	516			RS1/10S472J	C	515		4.7 μ F/16V		CCH1005
R	511	534			RS1/8S104J	C	516				CEAR47M50LS2
R	512				RD1/4PM102J	C	517		1000 μ F/6.3V		CCH1112
R	513				RS1/10S152J	C	518				CCSQCH100D50
R	514				RS1/10S182J	C	525				CCSQCH090D50
R	515	519	956		RS1/10S101J	C	527				CKSQYF104Z25
R	517				RS1/10S331J	C	528				CKSQYB473K25
R	518				RS1/10S821J	C	550				CEA101M10L2
R	523	564	703	921 973	RS1/10S222J	C	551	552			CEHAS4R7M35
R	525				RS1/10S474J	C	553	554 805 806 962			CKSQYB102K50
R	526				RD1/4PM102J	C	556				CEHAQ101M10
R	530	531			RS1/10S681J	C	557	558			CEHAQ470M25
R	532	533			RS1/8S681J	C	559	561 562			COEA224J63
R	538				RS1/10S563J	C	560				COEA224J63
R	539				RS1/10S0R0J	C	563				CEA0R1M50LS2
R	540				RS1/10S104J	C	564				CEA472M16L2
R	543	544	545	546 549 601 602 821	RS1/10S0R0J	C	600				CASAQ100M10
R	548				RS1/10S102J	C	703				COMA683J50LL
R	550				RS1/10S391J	C	704				CEAR33M50LS2
R	553				RD1/4PS392JL	C	800				CEA221M10L2
R	554				RD1/4PM392J	C	801	802 807 808			CEA4R7M35LS
R	555	556			RD1/4PS471JL	C	803	804			CEALNP100M16
R	557	558	559	560	RD1/4PS4R7JL	C	913				CEA220M16LS
R	561	562			RS1/10S152J	C	951		470 μ F/10V		CCH1019
R	701				RS1/8S473J	C	952	963			CKSQYB473K25
R	702				RS1/10S684J	C	956				CCG1008
R	800				RS1/10S470J	C	961				CEA2R2M50LS2
R	803	804			RS1/10S223J	C	964				CKSQYB103K50
R	807	808	817	818	RS1/10S471J						
R	809	810			RS1/10S681J						
R	811	812			RS1/10S133J						
R	813	814			RS1/10S472J						

Unit Number :
Unit Name : Key Board Unit (KEH-M6300SOX/WG)

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
IC	901				S-80740AH
IC	902				PD4285
IC	903				LC7582A
D	901	902 903 904 905		Chip Diode	DCC010
L	901			Ferri-Inductor	LAU101K
X	901			Ceramic Resonator	CSS1050
IL	908	909 910 911 913		Lamp (Orange)	CEL1208
S	901	902 903 904 905 906 907 908 909 910		CSG-253	
	911	912 913 914 915 916 917 918 919		Switch	
				LCD	CAW1124

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R	901	902 903 904 905			RS1/8S103J
R	906				RS1/10S104J
R	907				RS1/10S473J
R	908				RS1/10S103J
R	908	910 911 912 913 914 915 916 917 918			RS1/10S471J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C	901				CEA470M6R3LS
C	902				CKSQYF473225
C	903				CCSQCH331J50
C	904	905			CKSQYB103K50
C	906	907			CCSQCH221J50
C	908	909 910 911 912			CKSQYB152K50

Unit Number :
Unit Name : P.C. Board (A)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
S	2			Switch (FWD/REV)	ESH1003

Unit Number :
Unit Name : P.C. Board (B)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
D	1				F1SR35-100A
S	3			Switch (Tape/Tun)	ESH1004
SO	1			Solenoid	EXP1008

Miscellaneous Parts List

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
S	1			Switch (Mute)	ESN1005
HD	1			Head Unit	EXA1163
M	1			Motor Unit	EXA1162

Tuner Amp Unit

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
IC351	CXA1102P	CXA1102P	CXA1102P	----	----
IC502	PD4302	PD4302	PD4302	PD4343A	PD4343A
IC701	----	KHAC02	----	----	----
Q453, 454	----	DTC114TS	----	----	----
Q506	DTC114TS	DTC114TS	DTC114TS	----	----
Q701	----	DTB123YS	----	----	----
Q702	----	DTC114WS	----	----	----
Q703	----	2SC2458	----	----	----
Q917	----	2SD2037	----	----	----
Q977	2SB1243	2SB1243	----	2SB1243	2SB1243
Q978	DTC114TK	DTC114TK	----	DTC114TK	DTC114TK
Q979	----	----	2SB1243	----	----
Q980	----	----	DTC114TK	----	----
D506	1SS133	1SS133	1SS133	----	----
D508	----	----	----	1SS133	----
D509	----	----	----	----	1SS133
D511	----	1SS133	----	----	----
D700	----	HZS3R0EB2	----	----	----
D907	----	HZS9R1JB2	----	----	----
VR1	----	----	----	CCS1186	CCS1186
VR351, 352	VRTB6VS333	VRTB6VS333	VRTB6VS333	----	----
X701	----	CSS1019	----	----	----
1L951	----	----	CEL1207	----	----
1L952	CEL1208	CEL1208	----	CEL1025	CEL1025
TC501	----	----	----	CCG-070	CCG-070
R300	----	----	----	RD1/4PS472JL	RD1/4PS472JL
R359, 360	RS1/10S181J	RS1/10S181J	RS1/10S181J	RS1/10S151J	RS1/10S151J
R366	RS1/10S103J	RS1/10S103J	RS1/10S103J	----	----
R367	RS1/10S473J	RS1/10S473J	RS1/10S473J	----	----
R369, 370	RS1/10S154J	RS1/10S154J	RS1/10S154J	RS1/10S222J	RS1/10S222J
R375, 381	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	----	----
R377	----	----	----	RS1/10S0R0J	RS1/10S0R0J
R378	----	----	----	RS1/10S0R0J	RS1/10S0R0J
R379	RS1/10S0R0J	RS1/10S0R0J	RS1/10S0R0J	----	----
R384, 389	RS1/8S0R0J	RS1/8S0R0J	RS1/8S0R0J	----	----
R387, 388	----	----	----	RS1/8S472J	RS1/8S472J
R392	RS1/10S104J	RS1/10S104J	RS1/10S104J	----	----
R473, 474	RS1/10S183J	RS1/10S183J	RS1/10S183J	RS1/10S223J	RS1/10S223J
R540	RS1/10S104J	RS1/10S104J	RS1/10S104J	----	----
R606, 610, 611, 992	----	RS1/8S0R0J	----	----	----
R615	RS1/8S0R0J	RS1/8S0R0J	RS1/8S0R0J	----	----
R701	----	RS1/8S473J	----	----	----
R702	----	RS1/10S684J	----	----	----
R703	----	RS1/10S222J	----	----	----
R923	----	RS1/10S472J	----	----	----
R973	RS1/10S222J	RS1/10S222J	----	RS1/10S222J	RS1/10S222J
R974	RS1/10S152J	RS1/10S152J	----	RS1/10S152J	RS1/10S152J

KEH-M6300

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
R975	----	----	RS1/8S223J	----	----
R976	----	----	RD1/2PS681JL	----	----
R998	----	----	----	RD1/4PS222JL	----
C358	CEA4R7M35LS	CEA4R7M35LS	CEA4R7M35LS	----	----
C359, 360	CEA010M50LS2	CEA010M50LS2	CEA010M50LS2	JUMPER	JUMPER
C361, 362	CEA100M16LS2	CEA100M16LS2	CEA100M16LS2	JUMPER	JUMPER
C363	CEA470M16LS	CEA470M16LS	CEA470M16LS	----	----
C364	CKSQYF104Z25	CKSQYF104Z25	CKSQYF104Z25	----	----
C365	CEA101M10LS	CEA101M10LS	CEA101M10LS	----	----
C367, 368	CEAR68M50LS2	CEAR68M50LS2	CEAR68M50LS2	----	----
C516	CEAR47M50LS2	CEAR47M50LS2	CEAR47M50LS2	----	----
C525	CCSQCH090D50	CCSQCH090D50	CCSQCH090D50	----	----
C701, 705, 914	----	CEA470M16LS	----	----	----
C702	----	CKPYY103M16L	----	----	----
C703	----	CQMA683J50LL	----	----	----
C704	----	CEAR33M50LS2	----	----	----
C706	----	CEA4R7M35LS	----	----	----
C913	----	CEA220M16LS	----	----	----

FM/AM Tuner Unit

	M6300/EW, IT	M6300SDK	M6200/UC	M6250/ES
Q3	----	----	2SA1162	----
Q51	----	DTA114TK	----	----
D11, 12	----	----	1SV128A-BB	----
VR1	CCP1019	CCP1019	CCP1025	CCP1019
L2	CTF1086	CTF1086	----	----
L11, 12	----	----	CTF1065	----
L101	CTF1126	CTF1126	CTF1170	CTF1126
L201	CTF1084	CTF1084	CTF1026	CTF1026
R3	RS1/10S124J	RS1/10S124J	RS1/10S683J	RS1/10S124J
R8	----	----	RS1/10S331J	----
R9	----	----	RS1/10S223J	----
R10	RS1/10S560J	RS1/10S560J	RS1/10S0R0J	RS1/10S0R0J
R11	----	----	RS1/10S104J	----
R12	----	----	RS1/10S470J	----
R13	RS1/10S0R0J	RS1/10S0R0J	----	RS1/10S0R0J
R14	----	----	RS1/10S0R0J	RS1/10S0R0J
R58	RS1/10S393J	RS1/10S393J	RS1/10S223J	RS1/10S393J
R60	----	RS1/10S473J	----	----
R61	RS1/10S332J	RS1/10S332J	----	----
R101	RS1/10S331J	RS1/10S331J	RS1/10S471J	RS1/10S471J
R151, 152	RS1/10S222J	RS1/10S222J	RS1/10S152J	RS1/10S152J
C11, 12, 13, 14	----	----	CCSQCH220J50	----
C15	----	----	CKSQYB223K25	----
C57	CSZAR33K35	CSZAR33K35	CEAR68M50LS2	CSZAR33K35
C101	CKSQYB822K50	CKSQYB822K50	CKSQYB392K50	CKSQYB392K50
C151, 152	CKSQYB273K25	CKSQYB273K25	CKSQYB563K25	CKSQYB563K25

Key Board Unit

	M6300/EW	M6300SDK	M6300/IT	M6200/UC	M6250/ES
IL902, 904-907, 912	----	----	CEL1207	----	----
IL908-911, 913	CEL1208	CEL1208	----	CEL1025	CEL1025

Service Manual

ORDER NO.
CRT1328

CASSETTE MECHANISM ASSEMBLY

CX-197

NOTE

- This service manual describes operation of the cassette mechanism incorporated in models listed in the table below.
- When performing repairs use this manual together with the specific manual for the model under repair.

Model	Service Manual	Cassette Mechanism Assembly
KE-1700B/IT KE-1700SDK/WG KE-1730B/EW KE-2700B/IT KE-2700SDK/WG KE-2730B/EW	CRT1325	EXK1710
KE-1700QR/UC KE-2303QR/UC KE-2750QR/ES	CRT1327	EXK1710
KE-2033/UC KE-2033/XSG/UC KE-2828/XSG/UC KE-2828/ES, UC	CRT1331	EXK1710
KE-3838/UC, ES KE-3838/XSG/UC KE-3838/XML/UC	CRT1332	EXK1710
KE-1700B/XML/IT	CRT1336	EXK1710
KE-1730B/XIB KE-1730B/XML/EW KE-1730B/XSG/EW	CRT1337	EXK1710
KE-2630B/XIB KE-2730B/XIB	CRT1340	EXK1710

Model	Service Manual	Cassette Mechanism Assembly
KE-1700QR/XML/UC	CRT1339	EXK1710
KE-3700SDK/WG KE-3730B/EW KE-3700B/IT	CRT1326	EXK1720
KE-2700QR/UC KE-3700QR/UC KE-3750QR/ES	CRT1327	EXK1720
KE-4848/ES, UC KE-4848/XML/UC KE-4848/XSG/UC	CRT1330	EXK1720
KE-250/US KE-3033/UC KE-3033/XSG/UC	CRT1332	EXK1720
KE-3730B/XIB	CRT1338	EXK1720
KE-4500R/US	CRT1327	EXK1750
KE-350/US	CRT1330	EXK1750

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XQ103

1. DISASSEMBLY

Note: Always use new washer and E washer at the time of reassembling.

● How to Remove the Belt and Motor

1. Remove screw A fixing the FR lever. (Fig.1)
2. Remove three screws B fixing the sub-chassis unit. Move the unit first in Direction A, then in B direction, and lift it upward for removal. (Fig.2)
3. The belt can now be removed. (Fig.3)
4. Remove two screws C. The motor can be removed. (Fig.3)

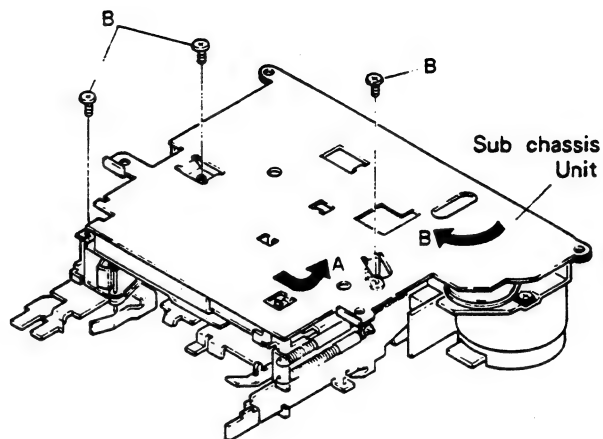


Fig. 2

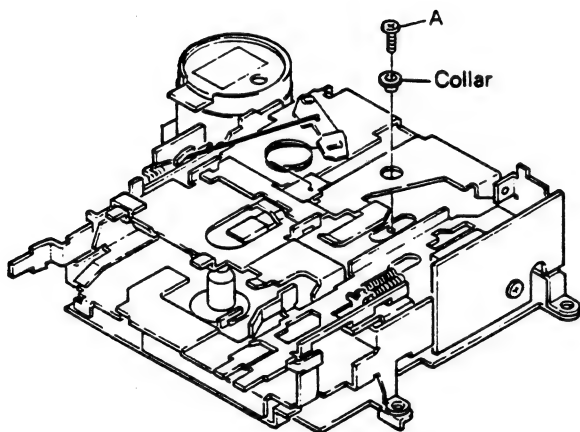


Fig. 1

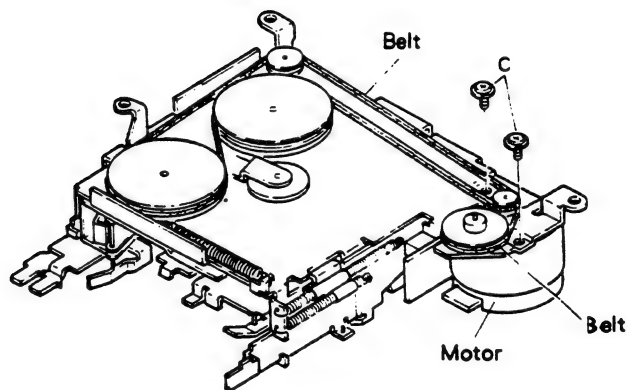


Fig.3

● How to Remove the Pinch Roller Unit and Head

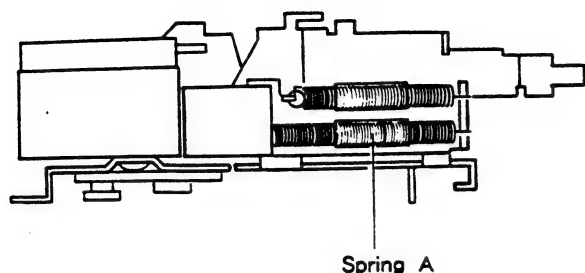


Fig. 4

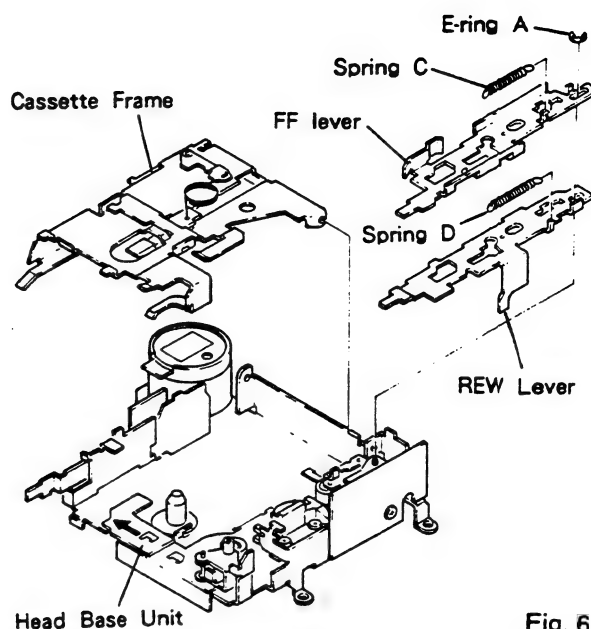


Fig. 6

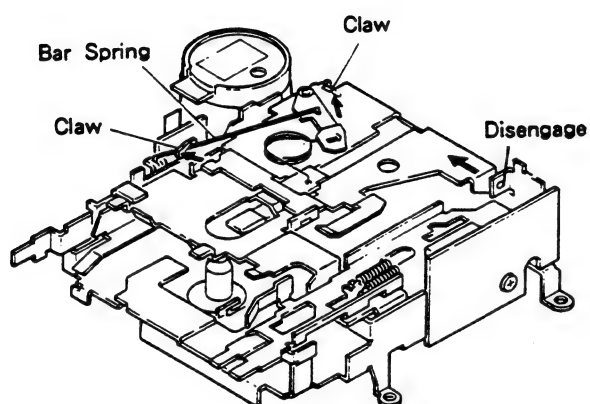


Fig. 5

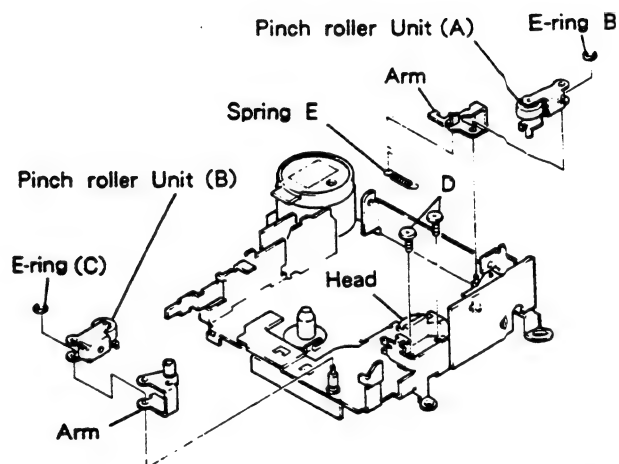


Fig. 7

1. Remove spring A. (Fig.4)
2. Extend claws (2 points). (Fig.5)
3. Remove bar Spring. (Fig.5)
4. Disengage projection by moving in a direction of arrow mark. (Fig.5)
5. The cassette frame is removed. (Fig.6)
6. Remove springs C and D. (Fig.6)
7. Remove E-ring A. (Fig.6)
8. Remove FF/REW levers. (Fig.6)

9. Move head base unit forward. (Fig.6)
10. Remove spring E. (Fig.7)
11. Remove E-ring B. The pinch roller unit(A) can be removed. (Fig.7)
12. Remove E-ring C. The pinch roller unit(B) can be removed. (Fig.7)
13. Remove two screws D. The head can be removed. (Fig.7)

2. ADJUSTMENT

2.1 CHECK POINTS OF CASSETTE MECHANISM

<p>Confirm the following items when replacing parts of the cassette mechanism.</p>	<p>■ Tape speed deviation: $3,000 \begin{smallmatrix} +90 \\ -30 \end{smallmatrix} \text{ Hz}$ $(4.76 \text{ cm/s} \begin{smallmatrix} +3 \\ -1 \end{smallmatrix} \%)$</p> <p>Using an NCT-111, measure the speed at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>	<p>■ Wow and flutter: Less than 0.2 % (WRMS)</p> <p>Using an NCT-111, measure the wow and flutter at the start and end of winding and take the maximum value. If values indicated by the pointer vary considerably, adjust to 70% of the minimum and maximum values. Measuring time shall be 5 – 6 seconds.</p>
<p>■ Fast forward and rewinding time: 100 – 120 seconds</p> <p>Using a C-60, set to fast forward and rewind, and measure the time with a stop watch.</p>	<p>■ Winding torque: 35 – 65g · cm</p> <p>Using a cassette type torque meter (100 g·cm), measure the minimum value while in the play mode. Measuring time shall be 2.5 – 6 seconds.</p>	<p>■ F.F. torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the F.F. mode.</p>
<p>■ REW torque: 70 – 120g · cm</p> <p>Using a cassette type torque meter (120 g·cm), measure the value when the tape stops in the REW mode.</p>	<p>■ Back tension torque: 2 – 6g · cm</p> <p>After setting in the REW mode without loading a cassette tape for 5 minutes, measure the back tension torque in the play mode, using a cassette type torque meter.</p>	<p>■ Cassette loading force: Less than 0.7 kg</p> <p>Push the center of the cassette and measure the force with a tension meter (3 kg).</p>

2.2 AZIMUTH ADJUSTMENT

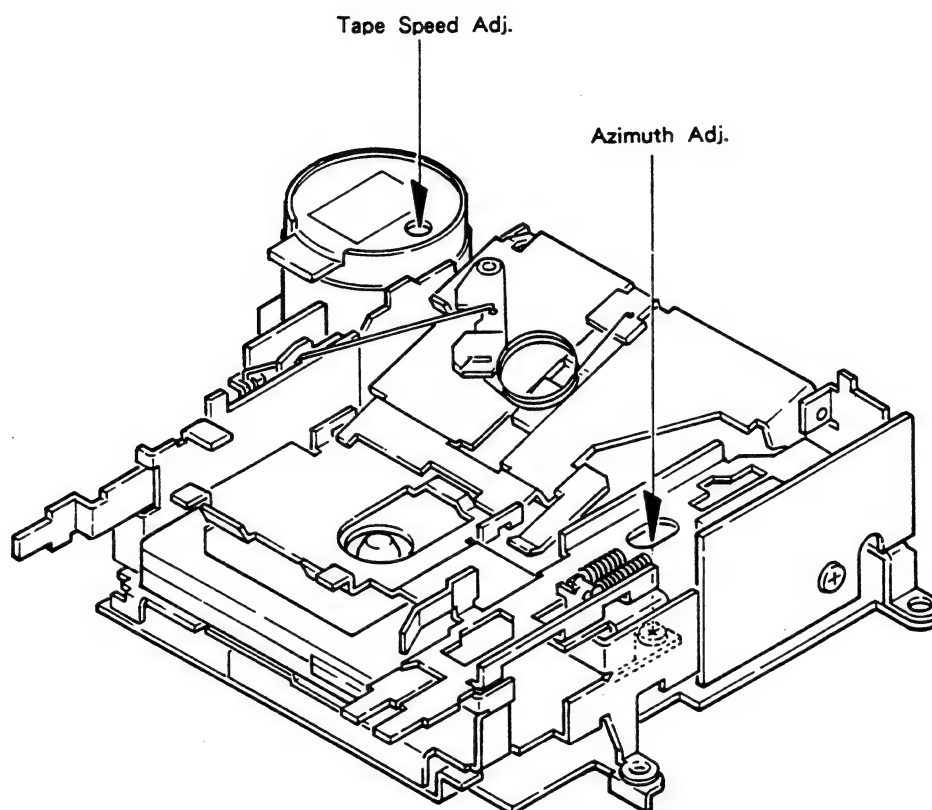


Fig. 8

● To Adjust (EXK1750)

1. Play "A" side of NCT-110 (10kHz, - 10dB). Adjust the screw for maximum output in forward and reverse directions.
2. Play "B" side in forward and reverse directions to confirm adjustment.

2.3 TAPE SPEED ADJUSTMENT

1. Reproduce NCT-111 (3kHz, - 10dB). Adjust the semifixed resistor so that frequency counter shows 3010Hz (+80Hz, - 40Hz).

3. MECHANISM DESCRIPTION

● Loading operation

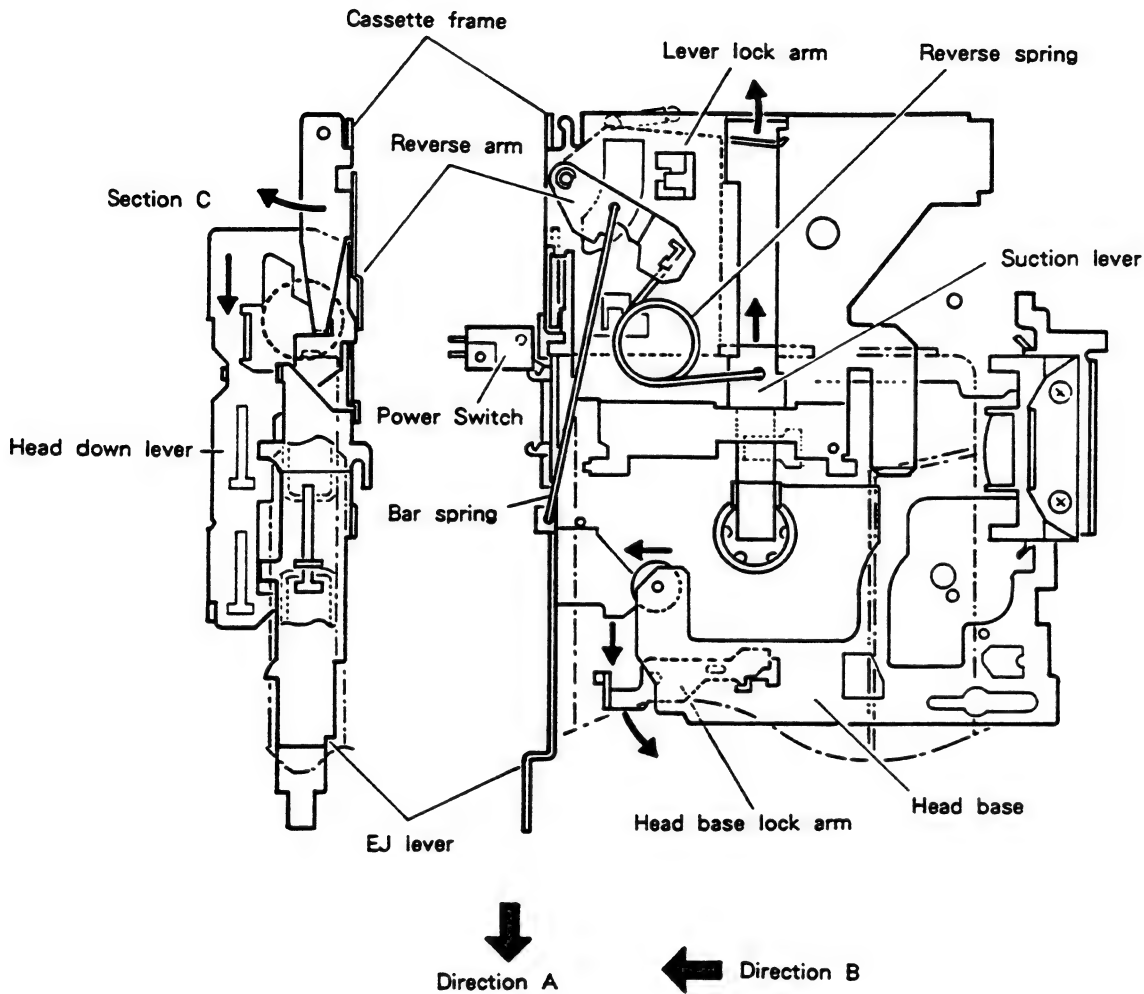


Fig. 9

1. A cassette tape, when inserted, pushes a suction lever.
The reverse spring rotates to move past the reverse point. Then, the cassette is drawn by a force of a reverse spring (suction operation).
2. After suction, the lever lock arm is pressed to be unlocked.
3. The head down lever is unlocked and the lever moves in Direction A.
4. While moving, the EJ lever turns ON the power switch.
5. The cassette frame engaged to the section C of the head down lever turns. (Cassette drop operation)
6. At the stroke end, the head down lever turns the head base lock arm.
7. A Stopper of the head base lock arm is released, and the head base moves forward (Direction B).

● MS Operation (EXK1720, EXK1750)

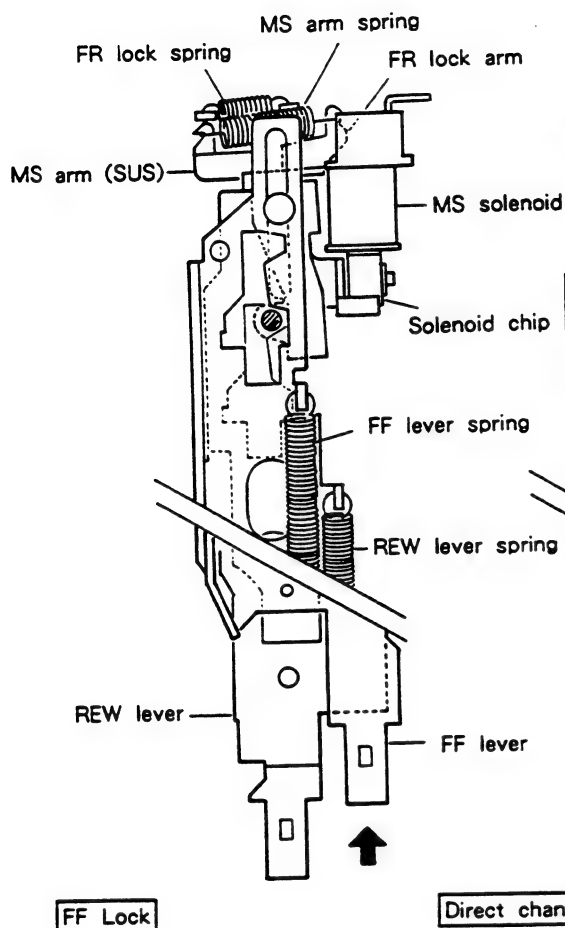


Fig. 10

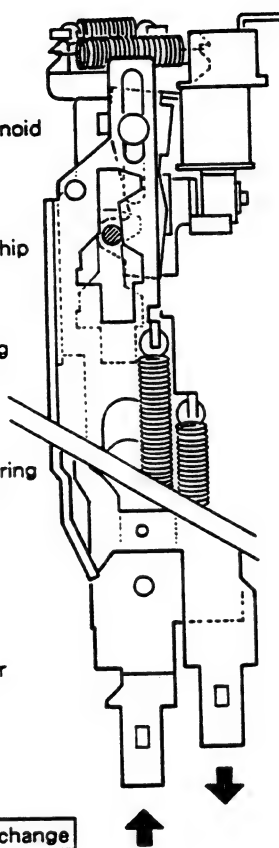


Fig. 11

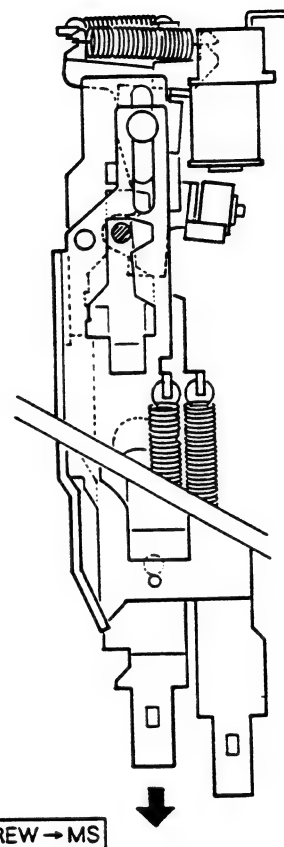


Fig. 12

1. The MS solenoid is normally energized to attract the solenoid chip during play and F/R operation. The solenoid chip applies counterclockwise force to the MS arm, thereby putting the FR lock arm into rotation via the MS arm spring. The MS lock shaft of FR lock arm unit catches a taper in a different hole of the FF (or REW) lever to lock the FF (or REW) lever.
2. In case of direct change, pressing the unlocked FF or REW lever causes the lever taper to turn the FR lock arm clockwise. This in turn presses the MS arm spring and FR lock spring to release the locked lever.
3. When the no recording section is caught and the power supply to the solenoid is cut off, the solenoid loses the attraction force and disables locking of the F/R lever. As a result, the F/R lever is unlocked. (This unlocking occurs because the force to retain the lever cannot be generated by the FR lock spring only)

● Direction Changeover Operation

(1) FWD play operation

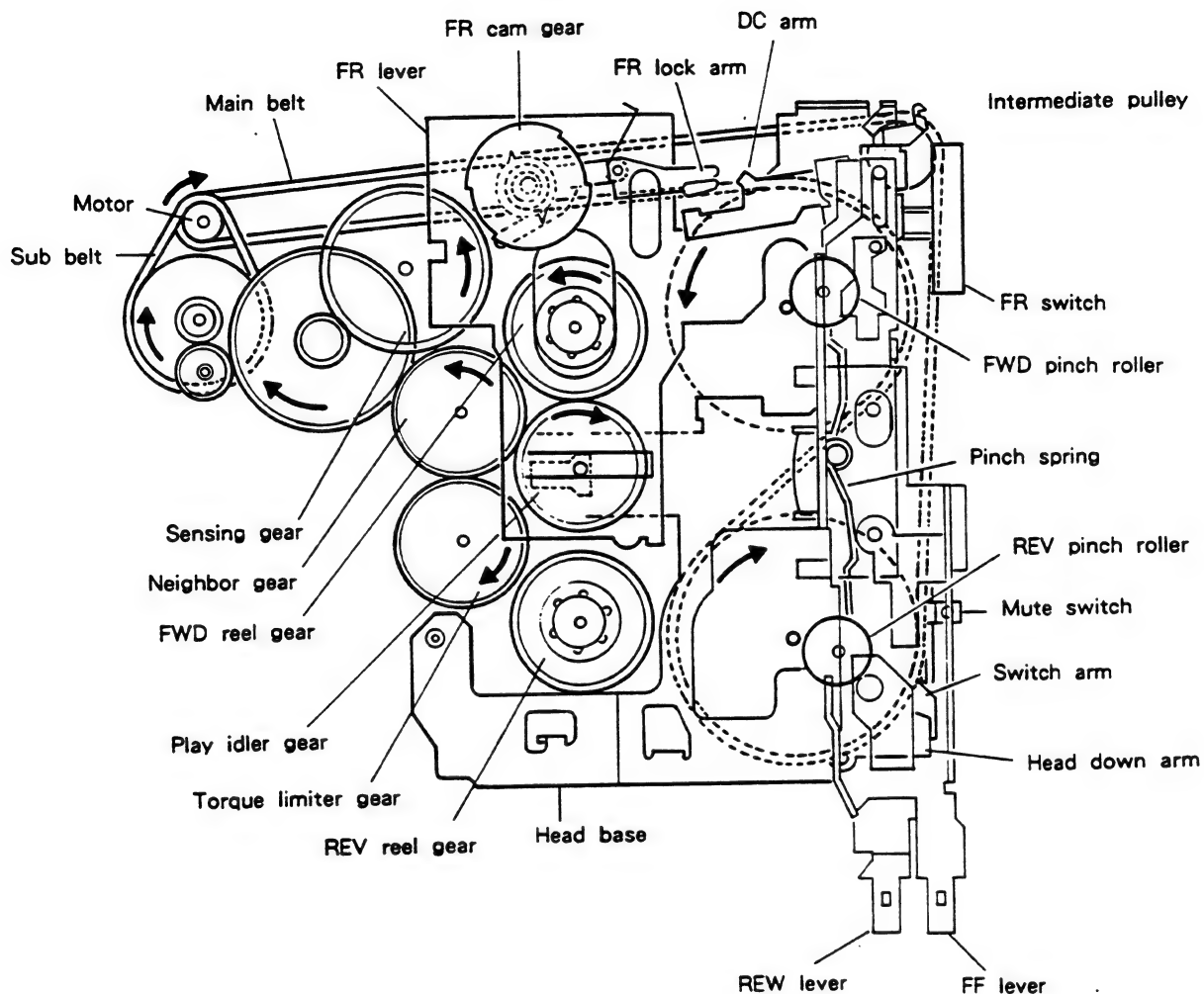


Fig. 13

When the FR lever is in the top position, the pinch spring is in the upper position to press the FWD pinch roller. The FR switch also moves upward and its reaction causes downward force on the FR lever. The spring attached to the FR lever applies upward force to the play idler gear from above to engage it with the neighbor gear and FWD reel gear.

The tape is driven in the FWD direction by a running motor and taken up by the REV reel gear via the torque limiter gear.

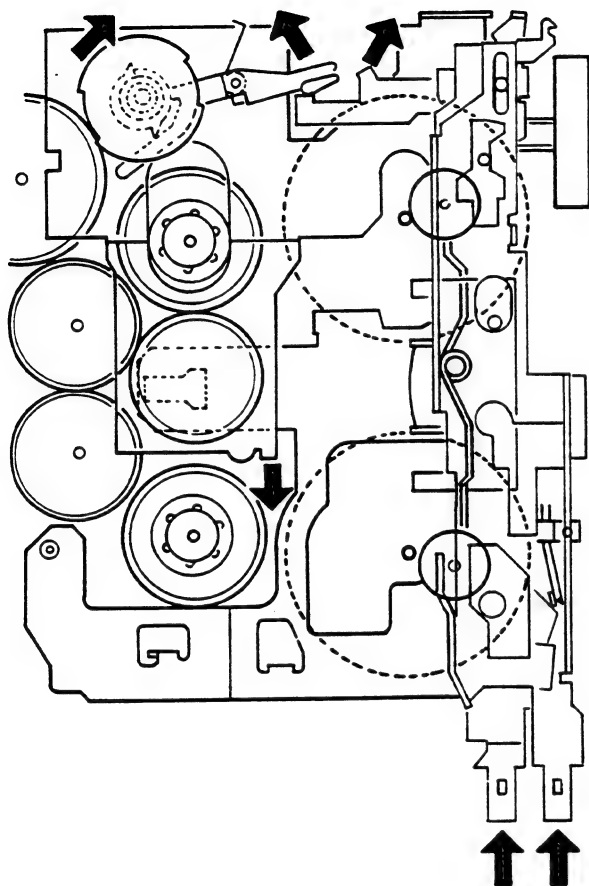
(2) Direction change operation

Fig. 14

The direction is changed by pressing FF and REW levers simultaneously. The DC arm turns along a cam groove of FF and REW levers to turn the FR lock arm. As the FR lever applies force from above downward, the FR cam gear turns and the notch meshes with the sensing gear.

As a result, the FR lever moves downward.

When FF and REW levers are kept pressed, the lock arm contacts the outside of the FR cam gear to prevent changeover between FWD and REV. Pressing FF and REW levers also cause the mute switch to be turned ON. In other words, muting is valid while FF and REW levers are pressed. (Fig.14)

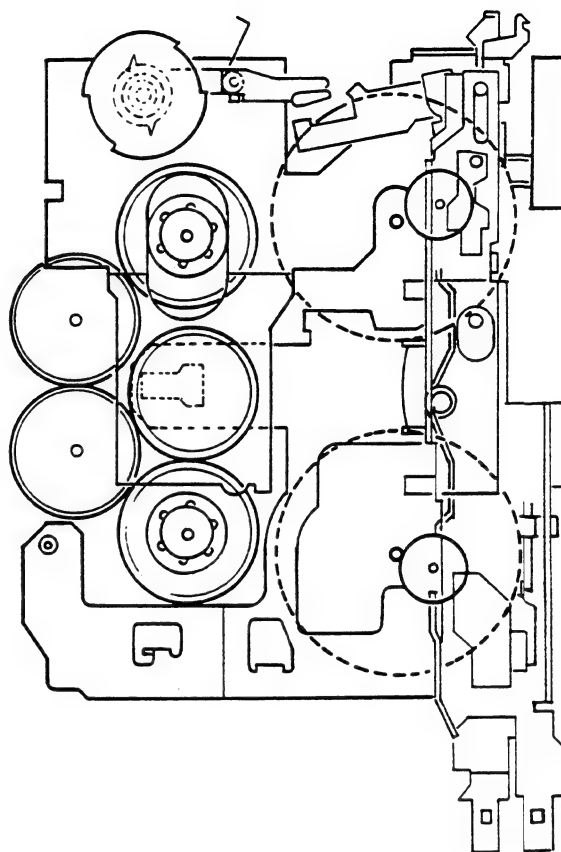
(3) REV play operation

Fig. 15

Moving the NR lever up and down causes changeover among the pinch roller, FR switch, and play idler gear. With FF and REW levers having been returned, the FR lock arm returns to the normal lock position and locks the gear when the FR gear completes an one-half turn. The mute arm also returns to turn OFF the mute switch. The reverse play state is thus obtained. (The same applies to changeover from REV to FWD.)

● FF/REW Operation

(1) FWD play operation

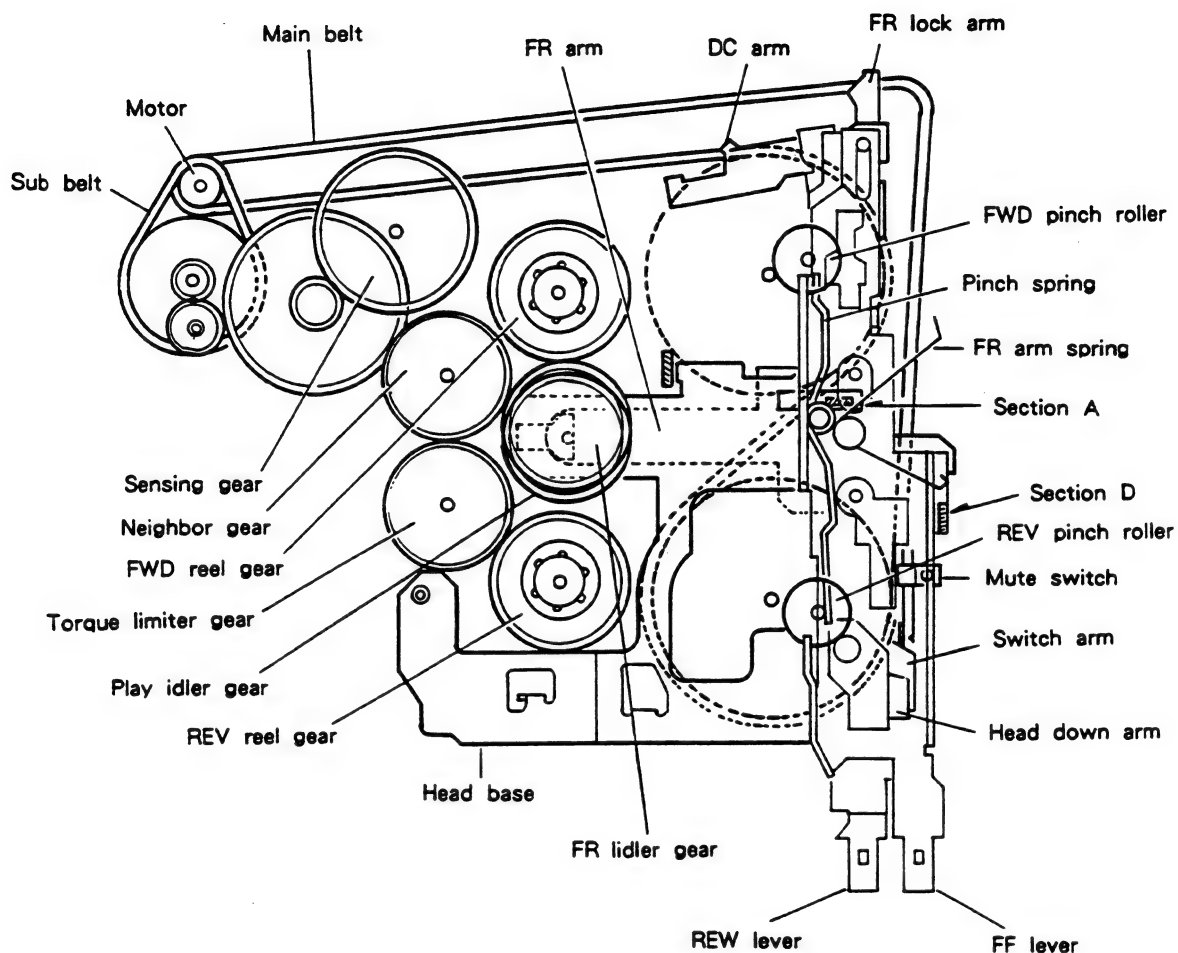


Fig. 15

In the FWD (REV) play state, the head base is fixed by a chassis stopper. The pinch spring presses the pinch roller into contact with a capstan to drive forward the tape. The REV reel gear takes up the tape via the torque limiter gear. In this case, the FR idler gear on the FR arm is centered by Section A of the head base and thus not rotating.

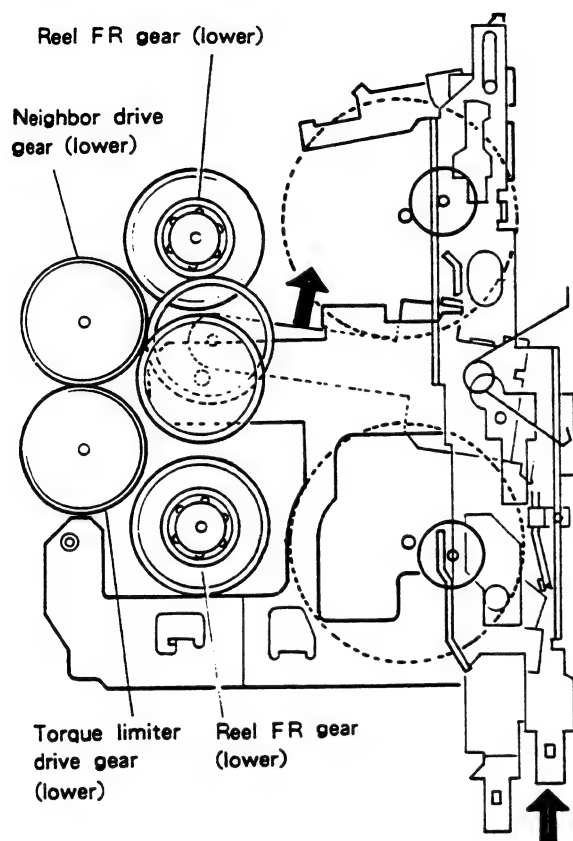
(2) FF Operation

Fig. 17

FF operation is obtained by pressing and locking the FF lever. As the FF lever is pressed, the switch arm turns to turn ON the mute switch. The head base is moved backward along the FF lever cam groove.

As the head base moves backward to release the pinch roller from the capstan, the play idler gear is simultaneously disengaged from the reel gear. As the head base moves backward, the FR arm centered by Section A is put into rotation by the FR arm spring to engage with the FWD side FR gear.

The FF lever is locked by the FR lock arm and performs the FF operation. (Fig.17)

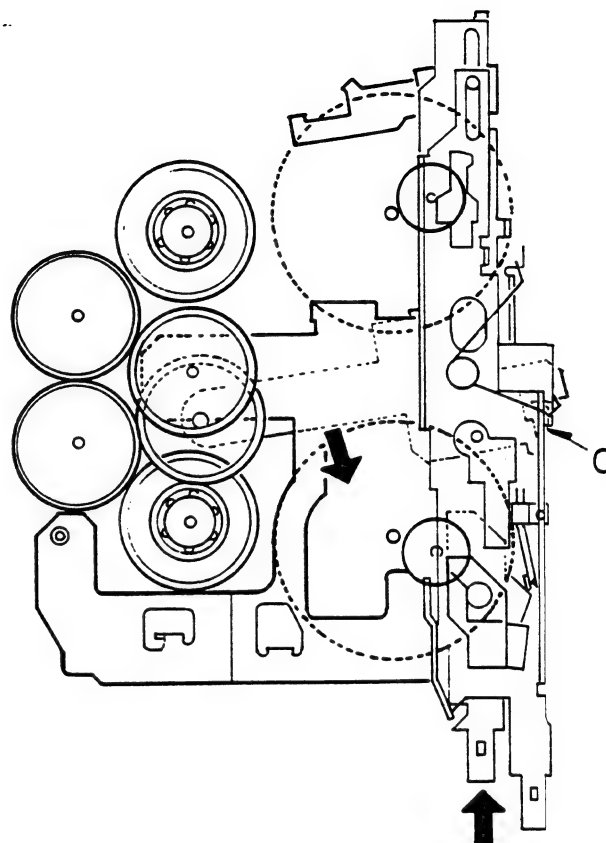
(3) REW operation

Fig. 18

Similar to the case of FF operation, pressing the REW lever causes the mute switch to be turned ON.

Simultaneously with release of the pinch roller from the capstan, the play idler gear is disengaged from the reel gear.

Section D of the REW lever presses a movable side of the FR arm spring, thereby engaging the FR gear to the FR gear on the REV side.

The REW lever is locked by the lock arm, performing the REW operation. This operation is cancelled when Section C is turned by the lever return spring. (Fig.18)

● Sensing Operation

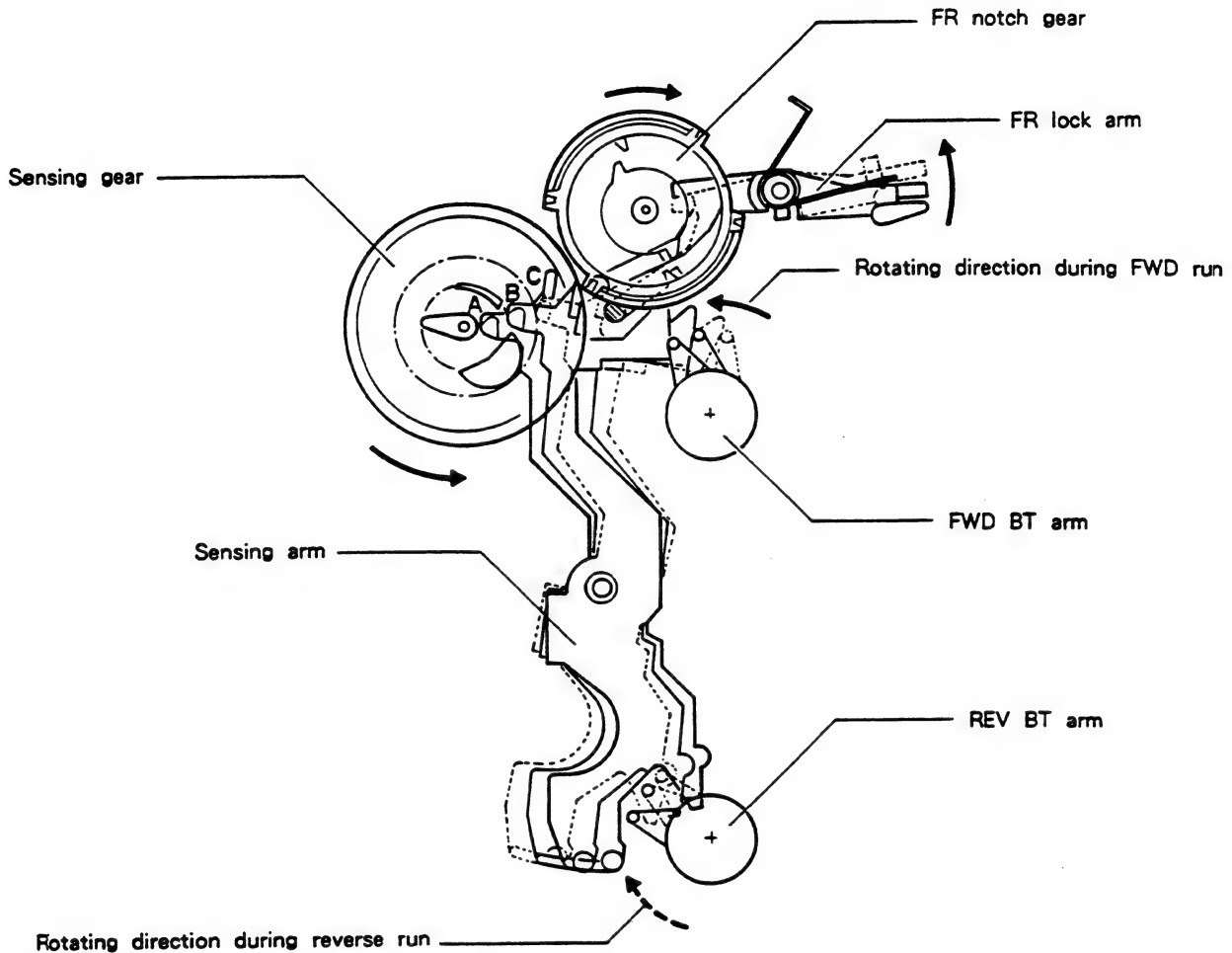


Fig. 19

1. During tape run: The sensing arm keeps oscillation between A and B under a force of the FWD BT arm (or REV BT arm).
2. At end of tape: The force of the BT arm is lost. The sensing arm stops at Position B, then pushed out to Position C by a crescent cam of the sensing gear.

3. Change of run direction:

The FR lock arm turns counter-clockwise along with movement of the sensing arm. The FR notch gear is unlocked and begins to turn.

● ATSC Operation

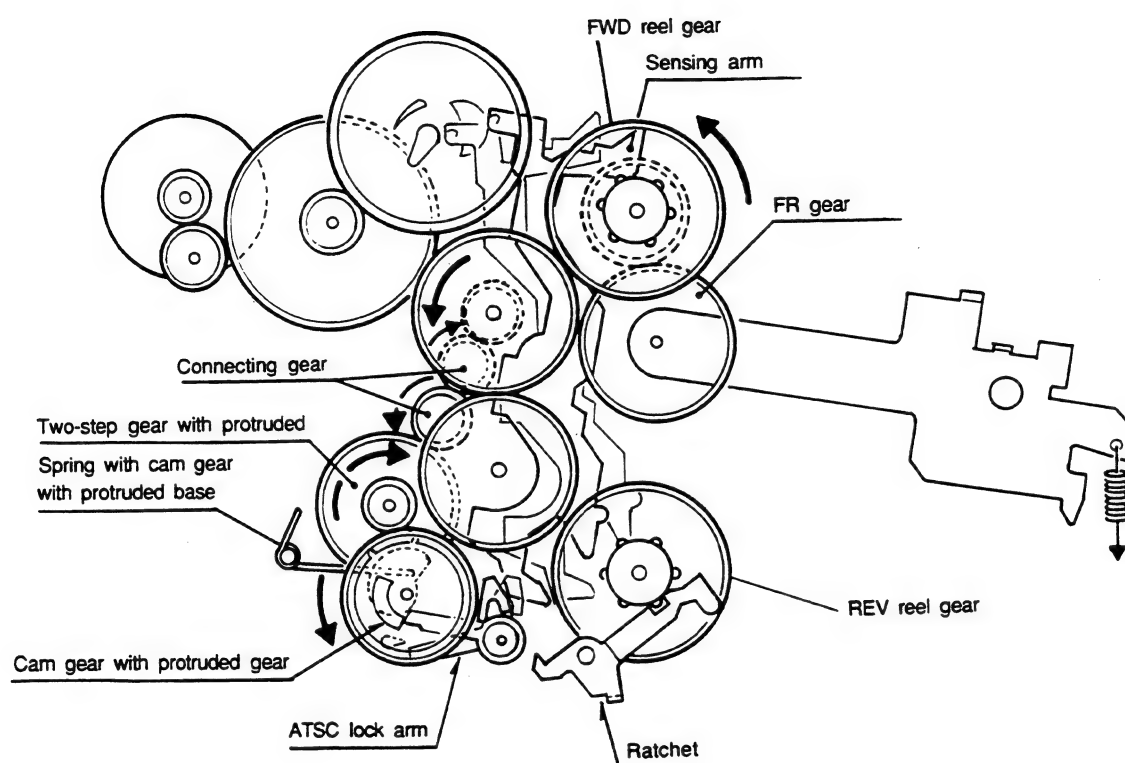
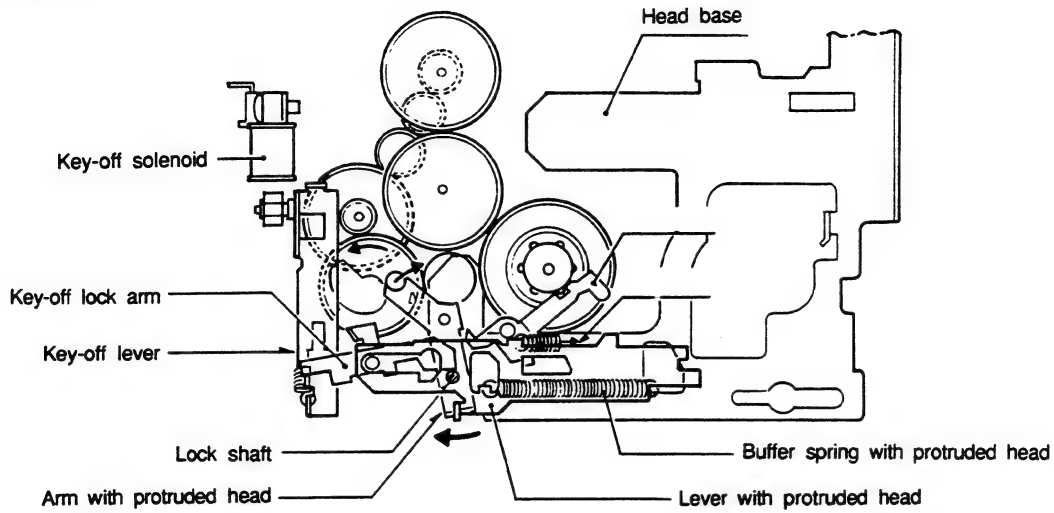


Fig. 18

1. At the position for releasing the head table, the FR gear is meshed with the FWD reel gear. Because the ratchet in the REV reel gear stops rotating, the tape must be wound up until no slack exist.
2. Because the rotation stops when no slack exists in the tape, sensing is performed. The sensing arm presses the ATSC lock arm, and the lock of the cam gear with protruded head gets out of position. Then, the cam gear is made to rotate.

● Key-off Operation

Release Condition



Play Condition

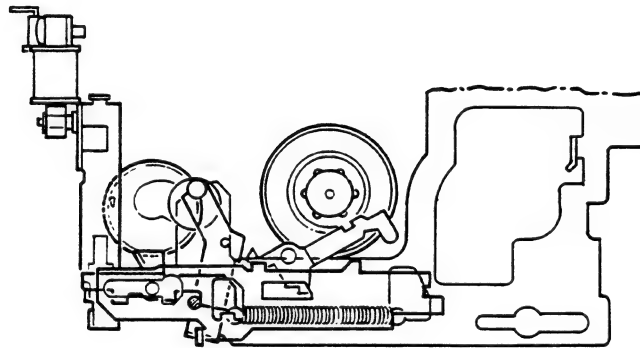


Fig. 19

1. Thrusting head: The arm with protruded head is rotated by the rotation of the cam gear with protruded head, and the lever with protruded head is pushed out. Because the lever with the protruded head and head base are connected by the buffer spring with protruded head, the head base moves forward.

2. Lock for head base:

When the lever with protruded head moves forward, the lock shaft caulked by the lever with protruded head shifts. Thus, the key-off lock arm can rotate, and the key-off lever reaches the key-off solenoid

by force of a spring, and becomes attached. (Although escape power works on the key-off lock arm by force of the head return spring, the solenoid maintains it.)

3. Key-off:

The key-off lock arm is rotated by the power of the head return spring when the key-off solenoid is switched off, and the lever with protruded head and head base move back together.

● EJECT Operation

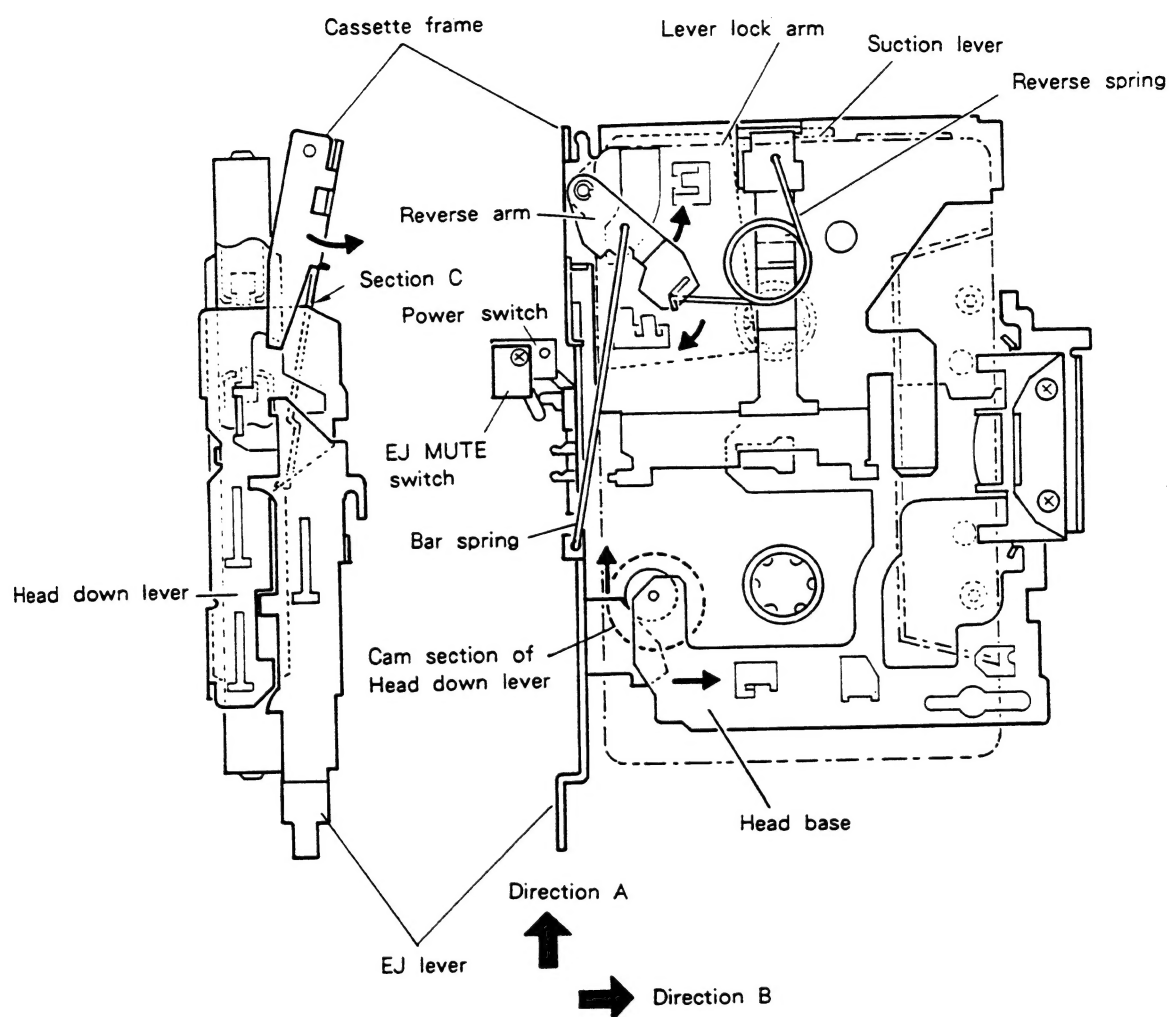


Fig. 20

1. Push the EJ lever in Direction A by hand (EJ MUTE SW ON) At the same time, the head down lever slides in Direction A.
2. The cam section of the head down lever returns the head base in Direction B (head base down operation).
3. Section C of the cassette frame is pushed up by the stroke of the head down lever (push-up operation).
4. The reverse arm is driven in a direction of arrow mark via bar spring by the EJ lever stroke.
5. The reverse spring passes through the reverse position to eject the cassette tape (eject operation).
6. With the EJ lever over-stroking, the lever lock arm can be rotated and locks the head down lever.
7. When released, the EJ lever returns and is stopped by the head down lever.

● EJECT Operation

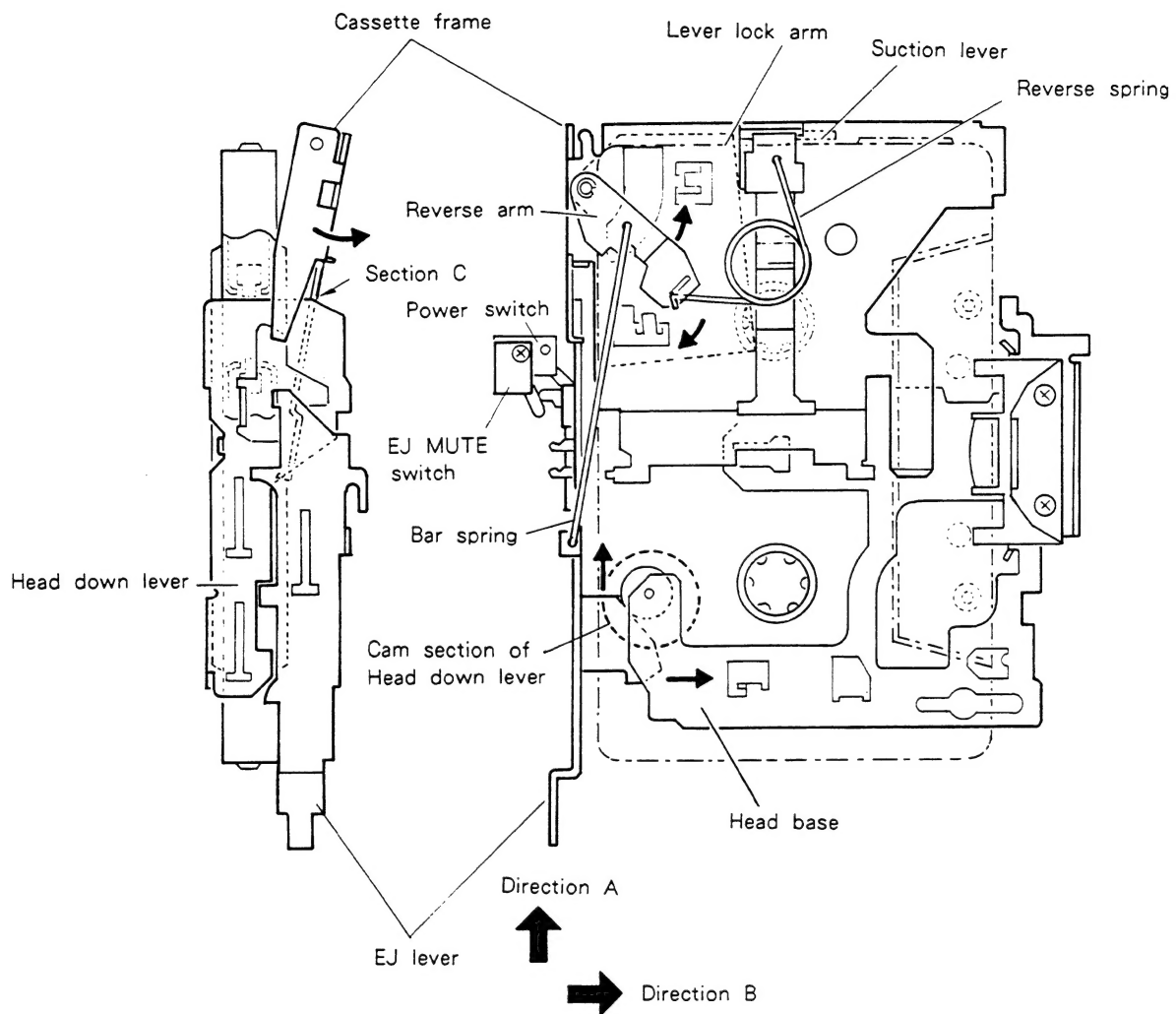


Fig. 20

1. Push the EJ lever in Direction A by hand (EJ MUTE SW ON) At the same time, the head down lever slides in Direction A.
2. The cam section of the head down lever returns the head base in Direction B (head base down operation).
3. Section C of the cassette frame is pushed up by the stroke of the head down lever (push-up operation).
4. The reverse arm is driven in a direction of arrow mark via bar spring by the EJ lever stroke.
5. The reverse spring passes through the reverse position to eject the cassette tape (eject operation).
6. With the EJ lever over-stroking, the lever lock arm can be rotated and locks the head down lever.
7. When released, the EJ lever returns and is stopped by the head down lever.

